PAGE 6

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PAGE 6 OFFERS

ORDER FORM on page 41

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Only £3.95 complete with manual listing all the features of this great language - probably the best thing you'll ever buy if you want to program! SEE THE TUTORIAL THIS ISSUE

SPELL ME *for your children*

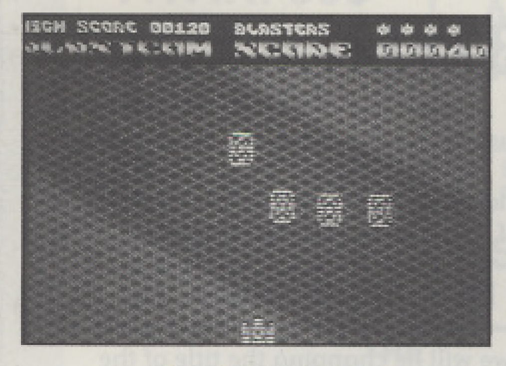
A super program to teach young children word recognition and spelling. Each word has a picture and there are several levels and options. Leave the word on the screen to allow the child to match it, turn the word off so that more effort is required or just have the picture to make things a little harder. Written by a primary school teacher for youngsters for 3 years and up, this will give your child a good start with words.

Cassette £4.95 Disk £6.95

'The magazine for the Dedicated Atari User'

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Issue 37 April/May 1989



BLASTCOM
Another machine language game!

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Annual subscription rates (6 issues)

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A disk containing all of the 8-bit programs from each issue of PAGE 6 is available either separately or on subcription. Single price £2.95 per disk, Subscription rates (6 issues)

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SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles.

The next issue of NEW ATARI USER will be on sale 25th May. Editorial copy date is 17th April

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PAGE 6
ATARI
USER

Editorial

A LOAD OF RUBBISH?

Issue 37
April/May 1989

'The Magazine for the Dedicated Atari User'

ISSN No. 0952-4967

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham did the editing, layout etc.

Sandy looked after the advertising

Stacey did all those things around the office without which we would not survive (especially making the Editor's coffee!)

Thanks also to **John R. Barnsley** for coming in to help us out

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

Garry Francis	**Mark Hutchinson**
Matthew Jones	**John Davison**
John Davison jr	**John Sweeney**
Paul Rixon	**Damon Howarth**

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their work and enthusiasm with other Atari users.

Everybody keeps asking 'Where's Garry Francis?'. So where are you Garry?

Inspiration for this issue comes, believe it or not, from Roy Orbison rediscovered via The Travelling Wilberries. Never a total fan of popular music in the sixties I wouldn't normally have dreamed of listening to The Big O but Mystery Girl is very much of the eighties and has been constantly on the CD, in the car, down the office ... for weeks! Brilliant! Also Spike which is growing on me as I write plus Martin Carthy, still amazingly good, and a reasonably pleasant excursion from Dylan and the Dead and a quick bit of Floyd at the end. Van the man is still in Bath, maybe next issue?

Serious? You bet! But Atari is supposed to be fun as well isn't it?

The next issue of PAGE 6 could feature YOUR article or program, so SEND IT IN!

PAGE 6 shows just what you can do with your Atari. With the exception of final output on a Linotron and use of a repro camera for the listings and photos, the magazine is prepared entirely with Atari based equipment and software - not a Macintosh or IBM in sight! Hardware used includes 130XE, 1050 disk drive, 810 disk drive, 410 cassette (occasionally!), 850 Interface, NEC 8023 printer, 1040ST, SM124 Monitor, Atari SH204 hard disk drive, Cumana 1 meg disk drive, Epson RX100 printer, Kyocera laser printer, Microstuffer printer buffer. Software includes Superscript, Turbo Basic, Kermit, PC Intercomm, TARI-TALK, Print Wiz, PC Intercomm, STWriter, Protext and Fleet Street Publisher. Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARI-TALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages is sent up to The Setting Studio in Newcastle (a typesetting bureau who really know what they are doing with the ST) to be output on a Linotron 300 and, hey presto, finished pages are sent back. It really does work - at last! All that is left is to drop in the listings and photos. Well, it's not quite as easy as that, but you get the idea!

It's been quite interesting over the past couple of months with lots of letters coming in,including a few from old Atari User readers saying what a load of rubbish Page 6 is! Now that is something that we have not had before and it can be quite upsetting opening the post in the morning after sitting up till 2 o'clock doing the typesetting! You begin to wonder what's it's all for, especially when none of the writers actually say why they think it's a load of rubbish. Actually there have only been about half a dozen unhappy readers with the good comments outnumbering them by ten to one but it is always interesting to read criticisms. The only person to say why they didn't like the magazine was a young chap who complained that Page 6 was too serious, "just like reading a newspaper" and if that if the worst that can be said I am quite happy! Give me the choice between producing the Independent or the Beano (or The Sun) and I know which I'd choose. Page 6 always was serious folks because it was born out of a serious love for a great computer and it is hard to change just to satisfy the mass market, not that we want to change anyway.

Many criticisms revolve around the fact that we cover both the XL/XE and the ST and come from those who seem to think that around 50 pages of 8 bit material with 20 pages of ST added on is somehow less than 50 pages of 8 bit material on its own. Others complain about the lack of colour, such as the guy who sarcastically started his letter along the lines of 'gosh a whole four pages of colour .. haven't you guys got it together' and then asked for our help with a problem! Your answer is on page 79. What everybody totally forgets is simple economics, it costs lots of money to produce lots of colour and most magazines get this from all those colour advertisements. Now Page 6 wants to go on supporting the Atari 8 bit as well as the ST but how many full colour adverts have you seen lately for 8 bit software? And because we support the 8 bit we don't get all the double page spreads from the companies that are only interested in the ST. Come to think of it how many advertisers are there altogether on the 8 bit scene? How much new software is there?

How would you 8 bit users like a 100 page, full colour magazine published every month? Yes? Okay, you find at least twenty five advertisers, half of whom will do full colour ads, at least 20 new software releases every month and sufficient other articles to fill it and then find 25,000 people to buy the magazine and we'll do it for you. Until then enjoy the fact that we do support your Atari and just consider whether Database would have sold Atari User if it was their top selling title.

IT'S NEW ATARI USER

Yes, we will be changing the title of the magazine from the next issue despite all the sentimental reasons for not doing so. The fact is that a new title will help us in the newsagents and with the computer trade and that means we will be able to continue to support your Atari for much longer (and who knows if we sell a few more copies we might be able to add some of that colour). The problems that we face are illustrated by a chat to our main local newsagent who didn't have Page 6 Atari User in stock and informed me that Page 6 was no longer being published (because the previous distributors had said they were no longer handling it) and that Atari User has ceased publication (which it had). We can't afford to be ignored and the new title will clear things up. Thanks to everyone who wrote with their views and, yes, PAGE 6 will still be mentioned fairly prominently on the cover!

SOME GREAT PROGRAMS

Over the years we have published some great programs and it is very pleasing when they keep coming in. This issue has somehow excited me more than any other recently because of the unique listings. Scrolly Text Editor is really great not only because it is a first for the 8 bit Atari but also because it lets 8 bit users share in some of the 'traditions' of the ST and other computers and, perhaps most important of all, it lets users share things with each other. This is how the whole Atari scene started and is what has been lost by most magazines, but we are proud to be able to continue the tradition of sharing your discoveries and achievements, however modest, with other users. The main listings are obvious ones to look out for but do check out the demos that accompany the Machine Code Library and Turbo Basic Tutorial, they really are cracking and show what *you* can do if you follow the tutorials and keep learning about your Atari. Another program that deserves mention is the bonus on this issues' disk - I have not had as much fun for ages and I guarantee that if you play Under Staters Orders with a couple of friends or family, you will all be jumping out of your seats!

A parting thought. Is there any interest in getting the listings from PAGE 6 on tape? We have tried in the past but the sales have been so low, it was not worth the trouble, are things different now?

Les Ellingham

NEW ATARI XL/XE SUPPORT

íAtari are demonstrating their support for the 8-bit machines by launching a new label which will include both existing and new software at budget prices. The label was launched initially in the U.S. but the first two titles were on their way to the UK as we went to press. Existing software such as Thunderfox and Twilight World will now be available at £2.99 and the first of the new titles at this price is Nucleus said to be 'difficult to explain but totally addictive'.

Full price software will also be produced by Atari commencing with Tiger Attack at £7.99 which is said to be an XE version of the arcade game Flying Shark. These and other titles should be available now, hopefully in the Atari Games Centres and other stockists. Atari will be extending the Games Centres concept with more retailers being appointed.

Meanwhile back at Atari UK headquarters in Slough a group of employees have taken over a mail order operation called ATARI WORLD which was apparently set up by Atari eighteen months ago to provide support for the XL/XE machines. Although not particularly prominent in the past, Daryl Still from Atari states that ATARI WORLD will be up and running shortly and promises total 8-bit support with all current software available at discount and goodies such as tee shirts, badges and posters lined up. All currently produced Atari software will be available together with any third party software including educational titles. You need to become a member to participate and you will then receive regular mailings. You can get details by writing to R. Warner, Atari world Mail Order, Atari House, Railway Terrace, Slough, Berks SL2 5BZ.

CRASH SIMULATOR?

If you are into Flight Simulator II, don't get into an XF551 disk drive, at least not yet. Various reports say that FS2 won't run on Atari's new drive. Sub Logic are, apparently, aware of the problem and are not too pleased that Atari didn't test the drive more fully before releasing it. Atari meanwhile are not about to start changing the drive so it looks like its down to Sub Logic to sort it out. If you have an XF551, best check before buying FS2.

We would be interested to learn of any other problems experienced with the XF551 drive.

NEW DATE FOR ATARI SHOW

If you are all ready to trek along to Alexandra Palace at the end of April for the next Atari Show hold fire a minute because the next show has been put back to June. We are not sure exactly why the date has been changed but understand that organisers Database Exhibitions have had long discussions with Atari over their plans for the show and it was felt that a later date would be more beneficial to all concerned. More likely is the fact that Database are heavily involved in launching and promoting the first European Computer Trade Show which takes place on the weekend before the usual date for the Atari Show and it is unlikely that the organisers could do justice to two shows on consecutive weekends. Whatever, the show is on and you can come along to see PAGE 6 and other supporters of the Atari at Alexandra Palace from 23rd to 25th June. Admission is £5 with a £1 discount if you book in advance. The Atari Xmas Show is also confirmed and will again be at Ally Pally from the 1st to 3rd December.

THE AMIGA IS DEAD ... LONG LIVE THE 8 BIT ATARI!

If you are a dedicated 8 bit owner sick of being told that the XL/XE is dead and gone then you might be very interested in a little bit of news buried away in the back of Computer Trade Weekly. This major trade paper carries a weekly chart of software sales compiled by Gallup and split between various machines. For the past year or so the Atari has been languishing near the bottom outsold by the ST and Amiga and occasionally even by the BBC and Electron but during January sales of software for the 8 bit Atari began to creep up until the week ending 21st January saw a major triumph - Atari 8 bit sales 4.4%, Amiga sales 3.9%! The ST was still just ahead but only by 1%.

Was it a fluke? No, the following week saw the Atari increasing sales to 4.9% still ahead of the Amiga and just a fraction behind the ST which stood at 5%. Then came a drop in sales, Atari down to 4% but the ST and Amiga plummetted to just 2.3% each! Loud cheers from Atari 8 bit users everywhere and a poke in the eye to all those software publishers that have steadfastly ignored the Atari over the past year.

Next time someone tries to tell you that your old Atari is obsolete, you know what you can tell them and let's hope that a few of the software publishers take note and get some new releases out.

OTHER SHOWS WORTH A VISIT?

A couple of other shows might prove worth a visit, especially if you happen to be near, although no details are available of what sort of support there might be for the Atari. The first is a one day show called The Alternative Micro Show held on Saturday 1st April at the New Horticultural Hall, Greycoat Street, London, SW1. This is aimed at the real hobbyist and is open to all micros except the ST, AMIGA and IBM! The organisers want to give support to those computers that are not grabbing all the limelight in the media and that will include the Atari 8 bit if any exhibitors are interested in turning up.

Over in Essex from the 21st to 23rd April is The Essex Computer Game Show, a show dedicated to those who just like to play games and especially aimed at the younger enthusiast. No details of exhibitors were available at the time of writing but the organisers have been working hard to get as wide a variety of machines supported as possible and there should be some companies supporting Atari.

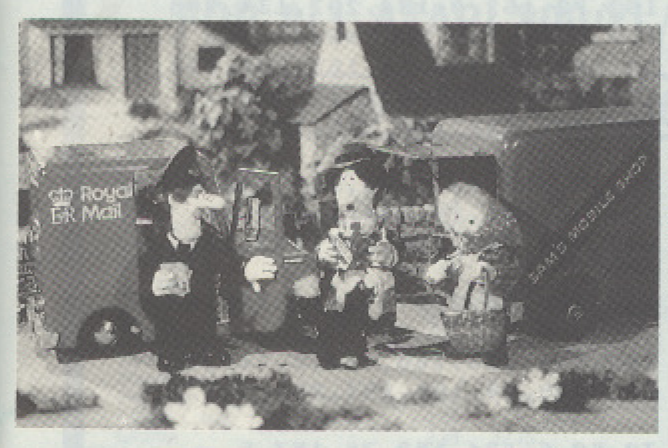
Small shows like these were fairly common some years ago but disappeared when the PCW Show seemed to eat everything up. It is interesting that there now seems to be the demand again for the less formal show and hopefully these will provide at least a small opportunity to promote the Atari 8 bit machines. Best idea, if you don't live round the corner, is to get in touch with the organisers to see if there will be any Atari exhibitors. The Alternative Micro Show is organised by Emsoft Ltd. who can be contacted on 0473 690729 and The Essex Computer Game Show is organised by Cambria Promotions whose number is 0268 694777.

NEW SOFTWARE COMING SOON

Despite rumours to the contrary, several of the companies that became famous for their Atari titles still have plans to support the 8 bit. Some interesting new titles for the XL/XE are imminent including a couple that have been long rumoured and awaited. Tynesoft should have The Last Guardian out by now and are working on Superman which was due for release at the end of February. Zeppelin, up in the same part of the world, have Kenny Dalgleish's Football Manager on disk at £12.95 or on tape at £9.95 which has been written for the Atari by the same guy who wrote Draconus. Could be the most dynamic football manager game yet! Zeppelin have also finished work on an Atari version of Star Wars which has been passed over to Domark for release so keep your eyes out in the glossies to see if the Atari version gets a mention.

Level 9, who always include the Atari in their plans, have two new adventures on the way, Scape Ghost and another as yet unnamed, which are due for early summer release. Atlantis are working on a conversion of Gunfighter although the release date is not known and in the meanwhile won't have any new Atari titles, not because they don't want to release them but simply because they don't have any. Mike Cole from Atlantis told us "We certainly want to continue supporting the Atari 8 bit but we just don't have any new programs, if any of your readers have good quality games for the Atari ask them to get in touch". He added that they were quite disappointed as their Atari titles have always sold well and the Atari market is now "better than ever".

Postman Pat is still awaiting delivery from Alternative and is now scheduled for "around Easter". Apparently lots of problems and delays, looks like it could be quite a good simulation!



I don't know, Jess, it would have been completed much earlier if we hadn't asked the Reverend Timms to do the programming

BARGAIN CORNER

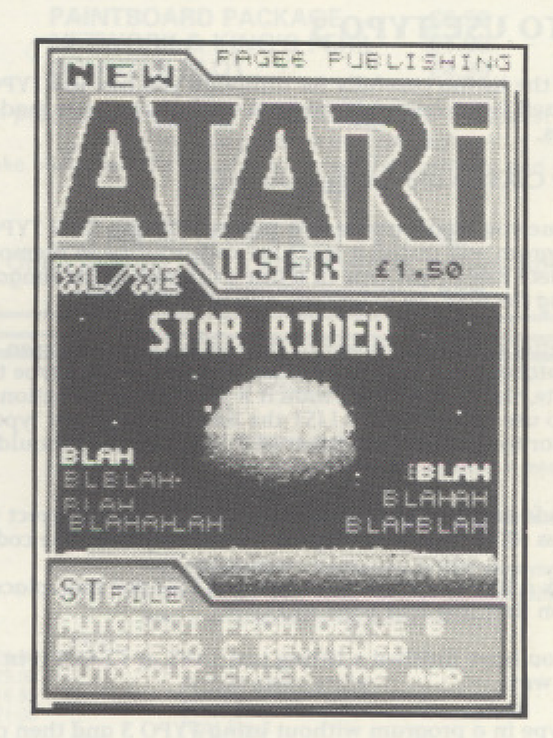
At the request of one of our readers, J & N Bull Electrical sent through a couple of newsletters, packed with information about cheap electrical and electronic goodies such as stepper motors, hydraulic valves, switches and prongs but buried in it all were some real bargains for potential Atari owners. How do you fancy a brand new 65XE for £45 plus £3 delivery? Or an XC12 cassette for just £15 plus £2 postage? A new joystick for a fiver? And if you are into hacking there are dozens of electrical bargains for a few bob.

We've no idea if these things are still available but it might be worth your while getting in touch with J & N Bull in case they have some more Atari bargains coming up. You can find them at 250 Portland Road, Hove, Sussex, BN3 5QT and the phone number is 0273 734648.

NEXT ISSUE

LOOK OUT FOR NEW ATARI USER

looking something like this ...



Mockup using Degas Elite

From Issue 38 Page 6 will change its title, but not its style - look out for NEW ATARI USER at your newsagents. On sale 25th May

If you buy your copy from a newsagent tell him about the change of title and make sure that he has a copy for you

NEW ATARI USER is distributed by Diamond Europress and should be at all major newsagents. Tell us if you can't find it

HOW TO TYPE IN THE LISTINGS and get them right!

The program listings in PAGE 6 are prepared carefully to ensure that they can be typed in as easily as possible. Before typing any listings ensure that you are familiar with the use of the Shift and CONTROL and INVERSE keys as outlined in your computer manual. The listings are prepared to match exactly what you see on screen. Every character that you may see in a listing is included in the chart below for cross reference. By using TYPO 3 you can ensure that you type in the programs EXACTLY as they are printed. Remember, a single typing mistake may mean a program will not run.

WHAT ARE THOSE CODES?

Each line of a program printed in PAGE 6 begins with a special two letter code. THESE SHOULD NOT BE TYPED IN. They are used by the program TYPO to check that you have typed each line correctly. IF YOU HAVE NOT ALREADY TYPED IN THE TYPO 3 LISTING PLEASE DO SO NOW. The program can be used as you type in each line of a program or to check an already typed program. The code for each line will match but if you have problems check the listing conventions below carefully, you are most probably typing a CONTROL character incorrectly. TYPO 3 cannot check whether a line has been missed so if you have problems in running a listing count the lines in the program and ensure none are missing. If the TYPO codes match and the program still does not run, LIST it to cassette or disk using LIST "C:" or LIST "D:filename", switch off the computer, re-boot and then ENTER the program using ENTER "C:" or ENTER "D:filename". Save this version in the normal way.

HOW TO USE TYPO 3

1. Type in the listing carefully for although you can use TYPO 3 to check itself (see 6 below) it may not work if you have made mistakes.
2. SAVE or CSAVE a copy of the program.
3. Each time you want to type in a program listing RUN TYPO 3 first. The program will install a machine code routine in memory and then delete itself. Now type in a line as shown in the magazine *excluding the first two letter code* and press RETURN.
4. A two letter code will appear at the top left of your screen. If this code matches the one in the magazine carry on and type the next line. Note, the code will not match if you use abbreviations. If you prefer to use abbreviations LIST the line you have just typed, move the cursor to that line and press RETURN. The code should now match.
5. If the code does not match, use the editing keys to correct the line and press RETURN again. Repeat if necessary until the codes match.
6. To check a line you have already typed LIST the line, place the cursor on that line and press RETURN.
7. When you have finished a listing just SAVE or CSAVE it in the normal way.

You can type in a program without using TYPO 3 and then check it by SAVEing or CSAVEing a copy of the program, running TYPO 3 and then LOADing or CLOADing your program and proceeding as in step 6 above.

Always SAVE or CSAVE a program before running it and always use TYPO before telling us that a program will not run.

OUR UNIQUE LINE BY LINE CHECKER WORKS ON ALL ATARI XL/XE and earlier 8-bit machines

```
EI 1 REM ********************************
AL 2 REM *  TYPO III by Alec Benson    *
        *          June 1985           *
SA 3 REM * A proofreader for ANTIC and *
        *   PAGE 6 based on TYPO II    *
        * published by ANTIC magazine *
EL 4 REM ********************************
SG 100 GRAPHICS 0
WG 110 FOR I=1536 TO 1791:READ A:CK=CK+A:
   POKE I,A:NEXT I
CG 120 IF CK<>30765 THEN ? "Error in DATA
    statements - Check Typing":END
YM 130 A=USR(1536)
VT 140 ? :? "TYPO III is up and running":
   NEW
MA 1000 DATA 104,160,0,185,26,3,201,69
HG 1010 DATA 240,8,200,200,200,192,36,208
QB 1020 DATA 242,96,200,169,79,153,26,3
RK 1030 DATA 200,169,6,153,26,3,162,0
RR 1040 DATA 189,0,228,157,79,6,232,224
TO 1050 DATA 15,208,245,169,93,141,83,6
KC 1060 DATA 169,6,141,84,6,173,4,228
EU 1070 DATA 105,0,141,95,6,173,5,228
BK 1080 DATA 105,0,141,96,6,169,0,162
KK 1090 DATA 3,149,203,202,16,251,96,0
ZR 1100 DATA 0,0,0,0,0,0,0,0
LD 1110 DATA 0,0,0,0,0,0,32,94
JM 1120 DATA 6,8,72,201,155,240,55,230
TV 1130 DATA 203,133,209,138,72,169,0,133
TW 1140 DATA 208,162,8,10,38,208,6,209
MF 1150 DATA 144,7,24,101,203,144,2,230
RL 1160 DATA 208,202,208,239,133,207,24,1
   65
TM 1170 DATA 204,101,207,133,204,165,205,
   101
AW 1180 DATA 208,133,205,165,206,105,0,13
   3
XH 1190 DATA 206,104,170,104,40,96,138,72
NR 1200 DATA 152,72,162,0,134,207,134,208
GF 1210 DATA 160,24,6,204,38,205,38,206
EA 1220 DATA 38,207,38,208,56,165,207,233
TM 1230 DATA 164,170,165,208,233,2,144,4
SK 1240 DATA 134,207,133,208,136,208,227,
   162
CB 1250 DATA 8,165,207,133,204,165,208,6
XN 1260 DATA 204,42,201,26,144,4,233,26
MB 1270 DATA 230,204,202,208,242,133,205,
   169
BC 1280 DATA 128,145,88,200,192,40,208,24
   9
WV 1290 DATA 165,204,105,160,160,3,145,88
QA 1300 DATA 165,205,24,105,161,200,145,8
   8
MQ 1310 DATA 32,69,6,104,168,76,153,6
```

Normal	Inverse	Shift	Inverse Shift	Control	Inverse Control
1		!			
2		"			
3		#			
4		$			
5		%			
6		&			
7		'			
8		@			
9		(			
0		)			
<					
>					
a		A			
b		B			
c		C			
d		D			
e		E			
f		F			
g		G			
h		H			
i		I			
j		J			
k		K			
l		L			
m		M			
n		N			
o		O			
p		P			
q		Q			
r		R			
s		S			
t		T			
u		U			
v		V			
w		W			
x		X			
y		Y			
z		Z			
-		_			
=		|			
;		:			
+		\			
*		^			
,		[			
.		]			
/		?			

INVERSE SPACE

Other codes

- ESC ESC
- ESC CTRL -
- ESC CTRL =
- ESC CTRL +
- ESC CTRL *
- ESC SHIFT CLEAR
- ESC DELETE
- ESC TAB
- ESC SHIFT DELETE
- ESC SHIFT INSERT
- ESC CTRL TAB
- ESC SHIFT TAB
- ESC CTRL 2
- ESC CTRL DELETE
- ESC CTRL INSERT

MAILBAG

write to Mailbag P.O. Box 54, Stafford ST16 1DR ENGLAND

AILING CASSETTE

I have an Atari 800XL and a tape recorder which will take most games except Americana which make some very good games. I think the problem is my tape recorder because my friend has the same computer and when I plug his recorder into my computer all the games work. I have been everywhere looking for someone to fix it and have not been successful yet in finding a person who will mend my Atari. Please would you let me know of any places that would take an interest in my computer.

Leigh Brayford, Stoke-on-Trent

Atari used to operate a number of Service Centres around the country through small retailers but these now seem to have died and the multiple stores are not going to be interested in people's little problems. One company that was always good with repairs is A.S. Wootton and Son who are in the Resource File at the back of the magazine and another company that will repair Atari's is PM Engineering, Unit 260, Milton Science Park, Cambridge (phone 0223 420007), although we are not sure if they do cassettes. It sounds as if your cassette's heads may be out of alignment, a common problem and relatively easy to fix, but do check the cost of repairs before sending any equipment off as repairs can sometimes cost almost as much as a new machine! If any readers know of a good reliable company that will repair Atari 8-bit equipment please let us know and we will include it in our Resource File.

PROGRAMMING CHALLENGES

I am a devoted Atarian as you are but there are a few things that I have to ask you.

Now that Atari User has been stopped will there be any more shows? Also could we have some challenges for the few good programmers such as I. What I mean is, Page 6 could think up an idea and we readers have to write a program for that idea, you could then offer a prize for the best sent in. In Atari User there was a program to produce 3-D images called 3-D DRAWER. I was really impressed by it and it gave me the idea of drawing something on the screen and then changing its position, e.g. turning it around. As I am absolutely pathetic at machine code, I thought you could find a good programmer to do this. It would be of great interest to a number of people. You could draw a shape and turn that shape into a player, add a few machine code routines and get it moving? On the subject of machine code could you recommend a book for the complete beginner as I am very willing to learn how to program faster.

Could you also give my praise and amazement to your programmer Paul Lay. What will he think up next?

R. Hill, Coventry

Thanks for the suggestions. A programming competition would be nice but from past experience we have found that it just doesn't work. What seems to happen is that everyone thinks that their efforts will not be as good as everyone elses, so nobody sends anything in! Some of our columnists have tried simple programming challenges with the same result so it is unlikely that we will be doing this in the near future - unless hundreds of you demand it! The idea of drawing a 3-D image and viewing it from different angles has already been done in Page 6 back in Issue 26 with Solid Modelling, you could even animate the image, but turning images into players is more difficult than might seem. The main problem is that a player is limited in size, although you could combine several players together. There are a few public domain Player Missile designers around which might help but you still need to add your own code to animate them.

A good book for machine code?

BEGINNER'S PROBLEMS

I bought an Atari 65XE for my son at Christmas without realising the potential of such a machine. Since then I have become totally addicted, not just to software games like my son, but to programming aspects and especially the type-in listings. As a complete novice I do not purport to know anything at all about programming so could you please explain what is wrong with certain listings? I decided to have a crack at Jumble Cell from Issue 35 as my debut but when I ran it all I got was ERROR 8 at line 480. Imagine my dismay, I was totally confused as I had used TYPO III and double checked and checked again. I also typed in Music Box from Issue 36 but as I ran it it gave ERROR over and over again in line 2002.

I would like to add that although I have had these problems, they are the only problems I have encountered with your listings.

J.B. Inverness

We like to hear of anyone who gets addicted to the Atari and we like to help as much as possible with difficulties in typing in the listings, which is just why TYPO 3 was developed. Now are you absolutely sure that you are using TYPO correctly and not letting one or two non-matching codes go by? There is no reason why you should get an error in Jumble Cell and no possible way that TYPO could give you a matching code if the line was wrong. Error 8 foxes all beginners because the error is not in the line that the computer says it is, but in data that that line is trying to read. In the example of Jumble Cell, although your error is strictly in Line 480 because the computer fails at the READ B statement, the actual typing error will be somewhere in lines 500 to 550. One way to find exactly where it is when DATA is being read by a loop is to find out how far through the loop the program has gone when it encounters the error. Take a look at line 480 and you will see a FOR .. NEXT loop which counts from 1 to 32 and reads the DATA in between. When you run the program and it stops with the error, type

Unfortunately all the best books are now out of print and the only ones that are easily available are Compute!'s Machine Language For Beginners and Second Book of Machine Language, both available through the Page 6 Accessory Shop. Finally, yes there will be more Atari User shows organised by Database, details are on the news page this issue.

ELECTRICAL CIRCUITS

I have just started doing an electrical course to aid me in my job. Obviously the course involves drawing circuit diagrams. I can recall seeing a program some time back that enabled you to draw electrical circuit diagrams. Do you know of such a program and if so where I could get hold of one?

John Fallon
Birmingham

If you have an XL/XE the program you are probably thinking about is PAGE MARSHAL which has been 'coming soon' for about eighteen months but is now finally available from the publishers Valar Software and, by coincidence, is advertised for the first time in this very issue. The printouts and facilities look excellent for an 8 bit machine.On the ST there is PCB Designer from Abacus software which is distributed by Precision Software and is available from Precision direct or from the many software discounters who don't advertise in Page 6!

NOT SO GOOD

I own an Atari 8-bit computer and I have been a great fan of Atari User for many years. I have just received the new Page 6 Atari User and I am afraid to say that it isn't as good as the original Atari User.

At first glance your new magazine seems to be a bit too serious. Most 8-bit users are children who are looking to their Atari for fun, your magazine is just like the newspapers, for example the Daily Telegraph. Atari User used to be a fun and enjoyable magazine, I suppose that is the main reason why it was so popular. Another few things that are missing are a TOP 20 chart, software solutions, hints and tips on games, what games are soon to be released and what games are released overseas. I know this is a tall order for you to undertake but as you only give Atari 8-bit users 40 pages then I do not think it would break the bank if you give us about 20 or 30 pages extra. Then Atari 8-bit users would get the coverage we deserve. I would also like to complain that most of the pages in the Atari 8-bit section are used up with type-in listings. hardly anyone has time to type them in, so please not too many.

Austin Collins

You have probably upset 80% of Atari owners by referring to them as children! Readers of Page 6 range from youngsters up to folks in their sixties and seventies with the majority in between. These people take their Atari seriously which is why the magazine is more serious. Fun with your Atari is waht you make it, not necessarily just big splashes of colour and cartoon drawings. New games? We report what we can find out, but most publishers in the 8-bit field are hopeless at telling anyone what is happening and as for overseas, it is probably easier to get White House defence papers than it is to get an answer from an American software publisher! We have tried. People do type in the listings, even the long ones, it's how a lot of people learn to program. As for an extra 20 or 30 pages not breaking the bank, tell that to our bank manager. Do you know how much these things cost? At a rough guess you could buy yourself about 9,000 budget cassettes over the next year for what it would cost to put an extra 30 pages in every issue!

GET IT WRONG!

I have just received Page 6 Atari User and started to read it with some trepidation as this was the dawn of a new era for the 8-bit Atari user in this country. I write as a great fan of the original Atari User, which was a superb magazine.

You ask for comments and within ten minutes of reading the magazine I have to write to you with a plea. Will Page 6 adopt the excellent Get It Right routine used extensively in Atari User for their new standard of error-checking Basic programs? The routine can either be typed in, or is available on the Atari User Toolkit disk. The reason for asking you to adopt this system is simple; TYPO III is outdated. I believe that all dedicated Page 6 enthusiasts would marvel at the speed and ease of use of the GIR program. Please take my criticism seriously. I can assure you that I am writing on behalf of every dedicated Atari User who regularly typed in programs from the old magazine.

Finally , a question - is my XF551 double sided (as I believed was mentioned when I bought it) and, if so, can SpartaDos 3.2 use this facility? At the moment I am using DOS 2.5 as supplied and getting annoyed at the slow speeds the drive operates at.

Tris Love
Glastonbury

A new dawn? We had our dawn long ago, before Atari User was even thought of, and don't plan on a sunset for a long, long, time. I supposed that utilities are subjective things but I can't honestly see how Get It Right is better than TYPO. With TYPO you hit RETURN and know, there and then, whether the line is right - NOTHING can be faster than that, can it? Surely it is easier to have the error code right on the line you are typing than have to refer to a chart that might be two pages away? The short answer is that TYPO III lives on, we have had dozens of letters and phone calls from Atari User readers saying it is brilliant, so I guess that it depends on your point of view.

The XF551 is double sided, it is just that it needs the proper DOS which Atari have still not released. SpartaDos will support true double density, if you can afford it get the new SpartaDos X reviewed in this issue.

SOME LIKE IT!

Congratulations on your take over of Atari User, the new magazine is great. Being a programmer for my father's firm requires me to gather as much information about both computers as I can. With Page 6 Atari User I have the best of both worlds, only one 8 bit magazine to buy with a 16 bit section in the price but 45p cheaper than ST USER! Brilliant. Keep up the good work.

Tyron Barnett
Canvey Island

PRINT L (L is the variable used for the loop) and a number will be printed on the screen. This number will represent the data item that is causing the problem, for example if it were 16 the wrong data statement would be the 16th number counting from line 500 up to line 550. You will probably find that you have typed a character instead of a number or maybe put a comma at the end of the line and if you did then you didn't use TYPO properly did you?

The Music Box problem is slightly different, but again should be picked up by TYPO. The line is too long to be typed in as it stands and you have probably lost the end part. Although the computer can show four lines of a program on screen you can only type in three lines. If you see any program line in a listing that goes onto a fourth line then you must find a way to squeeze that onto three lines. This can be done in several ways. You can type POKE 82,0 (no line number) and press Return before typing in the line, you can use abbreviations for the command words, such as GR. for GRAPHICS and SO. for SOUND and finally you can actually leave out nearly all the spaces! The computer will sort it all out for you. Most of these subjects have been covered in past issues of Page 6 but the issues are now, mostly, out of print. As many of the good books are now also out of print maybe it's time to resurrect some of the articles if there are now a number of new owners sampling the delights of programming?

More letters overleaf

COME DANCING!

Thinking of the superb graphics of the Atari gave me an idea for a most unusual program and I think it would be a doddle for one of your contributors.

In recent years I've noticed a great revival among younger people in the art of ballroom dancing, yes ballroom dancing. After all, prancing like frogs in a circle around a pile of handbags isn't dancing, it's boring. So how about a program showing the basic steps in the form of footprints moving around the screen, both sets of prints of course, ladies and gents. Diagrams in books and their accompanied instructions are frequently unclear and the timing of the steps is not easily understood.

Who knows, maybe the staff of Page 6 would be motivated to start a dance club!

E.G. Mitcham,
West Midlands

Now there's a most unusual application. I suspect that all the wizard Atari programmers would find the machine code no problem but would blow their brains trying to figure out the steps! Might be a problem getting in the sound effects though, a sampled 'Ouch' takes up a lot of memory! Maybe someone wants to try this out, I'd rather do the more modern stuff, just two footprints and a whole bunch of RND commands! As to the dance club, our youngest member of staff, Stacey, is falling about on the floor laughing at the moment. Pull yourself together, girl, this man is serious!

GAMES CENTRES WITH NO GAMES

Whilst reading your last issue I noticed the double page advertisement for Atari Games Centres. I was delighted to find that there was a centre close to me . I went down to Toy and Hobby in Manchester and found to my amazement that they had only three games for the Atari but a larger selection for other computers. They had no hardware at all. I'm wondering how on earth it got to be an official games centre with just three games as even my local video shop carries more Atari software.

K. Fairhurst,
Manchester

I am writing to see if Page 6 can enlighten me on an item which left me shot down in flames! I saw the advertisement in December's issue for the new Games Centres and saw Capital Computers so off I went on a 10 mile bus journey and what did I find? Four Atari 8 bit titles, so I asked the attendant what was going on. He said that Atari had supplied the centre but then recalled it because Atari 8 bit games are to cease from February. I was shocked, stunned and not amused at all! After a visit to Silicon Centre who I though supported Atari but only had 12 titles, I was about to give up when I saw a lad with an Atari tape. I asked him where he got it and he pointed me in the direction of Virgin's Megastore. To my surprise they had 22 titles so I went home happy but still-shocked at this state of affairs.

Spike,
Temple Gorebridge

I am writing to say how misleading the new 'Official atari Games Centres' ads are. The advertisement clearly shows a stand with a very amount of XE software on it and states that there are hundreds of titles in store at these centres for both XE and VCS. I thought great, loadsa titles for both my machines. I already have ATARI WORLD to go to in my area plus four other 8 bit/VCS stockists but I rang up Toy and Hobby in Manchester and to my disappointment they had only six VCS titles and no XE titles in stock! My disappointment turned to dismay when I rang their Stockport branch to be told that they had NO XE titles and only ONE VCS game! I am amazed at how ATARI WORLD is not listed and these shops are.

Damon Shaw,
Salford

We can't really comment except to say how sad the situation is. Atari tell us that they are extending the Games Centres and producing more 8 bit software (see news pages) but it does seem a shambles. How about clearing this up Atari?

SORRY, BUT WE CAN'T HELP

I have been having difficulties with a program published in ATARI USER back in February 1988 entitled Customising The Default Screen by Ken Brearly. I can get the program to make an auto-boot cassette but when this cassette has loaded the computer just locks up. I have checked the listing with the new Get It Right but I cannot for the life of me find anything wrong with the program. Please can you et me know what is wrong?

Simon Bowyer
Winchester

This is just representative of dozens of letter we have received about problems with listings from Atari User but I'm afraid that, much as we would like to help, we just can't. All of the listings from Atari User are just as new to us as they are to those of you who have typed them in. We weren't involved in evaluating them and have not seen a working version of most of them, so how can we answer your queries, short of typing in every listing ourselves? We would really like to help but it just ain't possible.

Maybe there are one or two readers who have got Atari User programs running who would be willing to help others out? If someone wants to volunteer to run a sort of Atari User listing helpline, we will gladly publish details but we simply do not have the time to help out. Apologies to all those who think that we don't care, we do, but we just don't have the resources to and help with every query.

GENEALOGY ON THE ATARI

The letter from Paul Thomas last issue sparked off a good response. E.G. Richards from London suggested several programs for the ST - GENERATION GAP published by Flying Pigs Software, P.O. Box 688, St. George, UT 84770, U.S.A. cost around $39.95 - ROOTS II which is for the IBM but will run on the ST using PC Ditto, cost $195, publisher not known - NEWGEN written by Mr Richards himself priced at £15. If you send a s.a.e. to him at 2 Peckarmans Wood, London, SE 26 6RX he will send you full details - COMPUTE YOUR ROOTS written by Jerry Halls, Wasatch Genealogical Software, 2899 West 7550 South, West Jordan, Utah 84084, U.S.A. price $29.95.

Mr Richards also suggests writing to the Society of Genealogists, 14 Charterhouse Buildings, Goswell Road,London EC1M 7BA which has a special interest group holding regular meetings to discuss genealogy and computers. It also publishes a magazine called 'Computers in Genealogy'. The Birmingham and Midland Genealogy and Heraldry Society are also said to have a computer branch. Finally there is a book 'Computers for Family History: An Introduction' by David Hawgood published in 1985 by Hawgood Computing Ltd., 26 Cloister Road, Acton, London W3 ODE.

Mr G. Mance of Essex also wrote as he was the chap mentioned in our reply who bought the Flying Pigs Software. He advises that the software and after sales support from Flying Pigs is excellent, don't be put off by the name! He paid $42 by Access (using a credit card is by far the best way to get software from overseas). He also recommends FAMILY TREE magazine available from W.H. Smith or direct from the publishers at 141, Great Whyte, Ramsey, Huntingdon, Cambridgeshire, PE17 1HP as well as the book mentioned above.

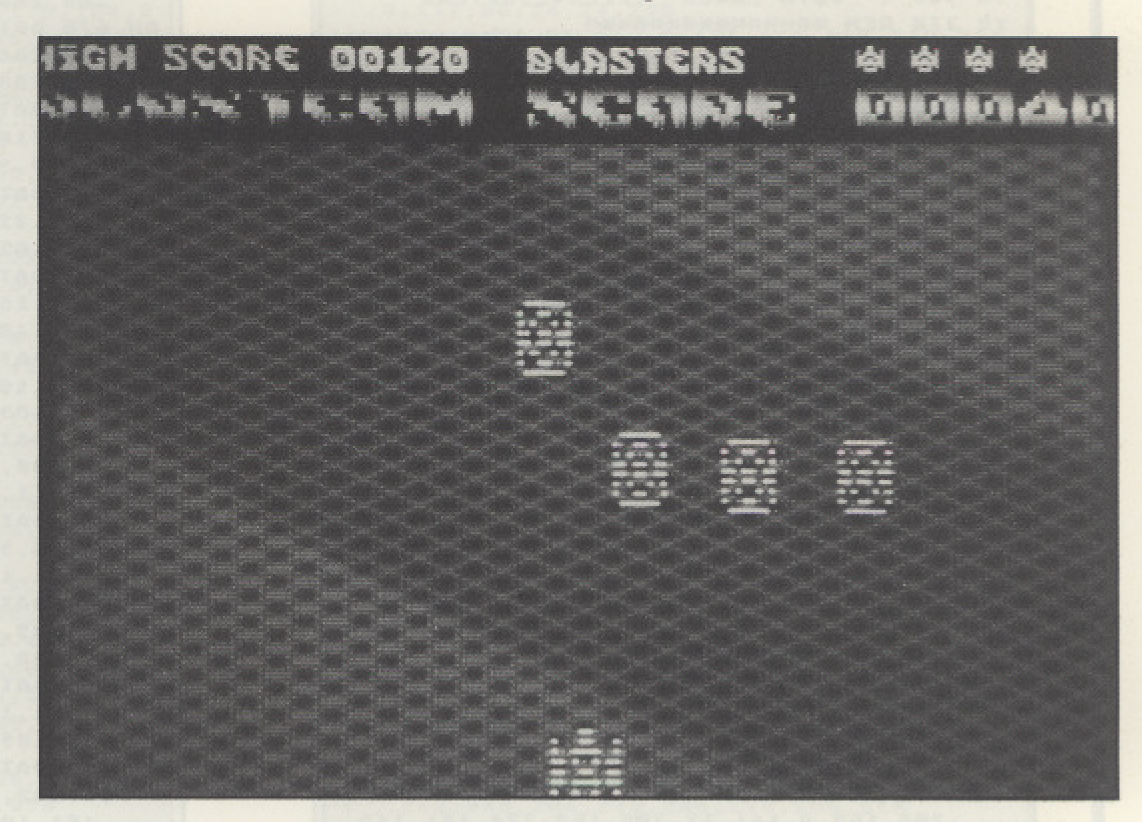
Thanks also to all the other readers who wrote in with advice and suggestions. There is an article on Genealogy with the 8 bit Atari in Issue 30.

BLASTCOM

BLASTCOM is just what the name implies a good old fashioned blast as wave upon wave of aliens come swooping down on a vertically scrolling screen. There is no storyline (unless you want to make up your own) just fast, colourful, 100% machine code arcade action. Keep shooting and avoiding contact with the aliens until your luck and your lives run out. You have four lives to start off with and play until you have no more. If you are good enough you can get your name onto the high score table. Get typing and get blasting! Plug a joystick into port 1 and fire away.

The program was written with a MAC65 Assembler and was turned from machine code to data statements using BOFFO from ANALOG magazine's November 1984 issue. The loader routine is also adapted from a program originally published by ANALOG.

by Karl Fenwick



TYPING IT IN

Simply type in the BASIC listing, using TYPO 3 to check the lines as you go, and then save the finished program to disk or cassette using CSAVE for cassette or SAVE "D:BLASTCOM" for disk. LOAD the program back in again and type RUN.

Although the program is totally Assembly language it does not create a bootable file, the loader simply reads the DATA and POKEs it into memory. As the program is just over 2K in length there should be no problem running it on any Atari XL or XE or the older machines.

LISTING OVERLEAF

GETTING THE SOURCE CODE

The author is willing to make copies of the Assembly Language source code for BLASTCOM available to any interested readers for a small payment. Send £2 for a tape copy or £3 for a disk copy to SARDAKER SOFTWARE, 38 Shawe Hall Crescent, Flixton, Manchester, M31 3EN. Make all cheques payable to SARDAKER SOFTWARE and please specify if you want MAC65 or Atari Assembler Editor versions.

```
WO 1 REM ******************************
WY 2 REM *          BLASTCOM          *
HD 3 REM *       for ATARI XL/XE      *
XT 4 REM *            by              *
JX 5 REM *        Karl Fenwick        *
SS 6 REM * -------------------------- *
KD 7 REM * PAGE 6 MAGAZINE - ENGLAND  *
WV 8 REM ******************************
NO 9 REM
TY 230 TRAP 350:ADDR1=24576:ADDR2=24576
HT 240 ? "KPlease wait a few moments whil
   e        BLAST-COM loads"
ZG 250 FOR LINE=200 TO 1180 STEP 10
AA 260 FOR X=1 TO 25
ML 270 READ BYTE:POKE ADDR2,BYTE:ADDR2=AD
   DR2+1
KA 280 TOTAL=TOTAL+BYTE
QZ 290 IF TOTAL>999 THEN TOTAL=TOTAL-1000
LN 300 NEXT X
TX 310 READ CHECKSUM
DB 320 IF TOTAL<>CHECKSUM THEN ? "DATA ER
   ROR AT LINE ";LINE:END
EN 330 NEXT LINE
NT 340 A=USR(ADDR1)
DY 350 IF PEEK(195)=6 THEN ? "DATA OK":EN
   D
SB 360 ? "DATA ERROR ";PEEK(195):END
YQ 370 REM ***************
FM 380 REM START OF M/C  *
DS 390 REM DATA          *
YD 400 REM ***************
GK 410 DATA 169,0,141,53,102,32,20,96,32,
   184,96,32,64,97,32,118,97,76,5,96,169,
   0,141,173,102,127
ZH 420 DATA 141,174,102,141,61,102,141,62
   ,102,173,53,102,208,91,169,4,141,53,10
   2,169,0,141,63,102,162,886
CK 430 DATA 0,189,113,102,157,121,102,189
   ,117,102,157,125,102,232,224,4,208,239
   ,160,0,169,2,153,221,103,177
WW 440 DATA 200,200,192,8,208,247,162,0,1
   89,106,103,221,202,103,240,4,144,20,17
   6,5,232,224,4,208,239,814
TQ 450 DATA 162,0,189,106,103,157,202,103
   ,232,224,5,208,245,169,16,141,106,103,
   141,107,103,141,108,103,141,129
CI 460 DATA 109,103,141,110,103,169,6,141
   ,196,2,169,12,141,197,2,169,0,141,198,
   2,169,0,141,200,2,752
KA 470 DATA 169,14,141,199,2,169,3,141,15
   ,210,169,65,141,8,210,169,2,141,1,210,
   169,128,141,0,210,579
RN 480 DATA 169,104,141,244,2,141,9,212,9
   6,169,104,141,7,212,169,62,141,47,2,14
   1,0,212,169,20,141,434
SB 490 DATA 111,2,141,27,208,169,3,141,29
   ,208,169,0,141,12,208,169,224,141,145,
   102,169,0,162,0,169,284
NT 500 DATA 2,157,8,208,189,64,102,157,19
   2,2,189,68,102,157,133,102,157,0,208,1
   89,72,102,157,137,102,240
OC 510 DATA 189,76,102,157,141,102,157,4,
   208,232,224,4,208,216,162,0,169,0,157,
   0,107,157,0,108,157,277
MK 520 DATA 0,109,157,0,110,157,0,111,202
   ,208,238,162,0,160,0,189,8,104,153,132
   ,108,153,132,109,153,132
NS 530 DATA 132,110,153,132,111,189,16,10
   4,153,224,107,200,200,200,232,224,8,20
   8,227,96,169,191,141,2,103,764
KT 540 DATA 169,103,141,3,103,169,0,141,4
   8,2,141,2,212,169,103,141,49,2,141,3,2
   12,169,225,141,0,353
YX 550 DATA 2,169,100,141,1,2,169,128,13,
   14,212,141,14,212,162,98,160,43,169,6,
   32,92,228,96,173,930
LG 560 DATA 174,102,201,60,144,249,162,97
   ,160,195,169,6,32,92,228,169,0,141,1,2
   10,141,3,210,141,5,22
MJ 570 DATA 210,141,7,210,206,53,102,173,
   53,102,240,20,10,168,169,0,153,221,103
   ,169,225,141,2,103,169,172
JO 580 DATA 101,141,3,103,76,186,97,169,1
   51,141,2,103,169,103,141,3,103,173,16,
   208,208,251,141,30,208,199
XX 590 DATA 96,162,0,138,157,0,208,232,22
   4,4,208,248,169,0,133,77,238,57,102,20
   8,65,238,58,102,173,496
LW 600 DATA 58,102,201,1,208,55,169,0,141
   ,57,102,141,58,102,169,255,77,54,102,1
   41,54,102,240,25,173,283
WI 610 DATA 2,103,141,55,102,173,3,103,14
   1,56,102,169,9,141,2,103,169,102,141,3
   ,103,76,24,98,173,577
IX 620 DATA 55,102,141,2,103,173,56,102,1
   41,3,103,169,225,141,0,2,169,100,141,1
   ,2,32,191,100,141,972
PF 630 DATA 30,208,76,95,228,238,61,102,2
   08,45,238,62,102,173,62,102,201,2,208,
   35,169,0,141,61,102,921
UN 640 DATA 141,62,102,174,63,102,189,121
   ,102,48,6,254,121,102,76,83,98,222,121
   ,102,232,224,4,208,2,880
IG 650 DATA 162,0,142,63,102,169,225,141,
   0,2,169,100,141,1,2,169,0,133,77,173,1
   46,102,141,5,208,453
NB 660 DATA 173,147,102,141,6,208,32,191,
   100,173,174,102,240,3,76,20,100,173,8,
   208,240,3,76,209,99,457
DU 670 DATA 173,11,208,240,3,76,209,99,17
   3,9,208,240,6,32,140,101,76,165,98,173
   ,10,208,240,3,32,390
NH 680 DATA 140,101,173,189,102,240,14,14
   1,2,210,169,39,141,3,210,238,189,102,7
   6,189,98,169,0,141,3,469
WL 690 DATA 210,32,191,100,173,173,102,24
   0,20,32,121,101,169,234,141,5,210,173,
   190,102,141,4,210,238,190,971
FA 700 DATA 102,76,235,98,169,0,141,5,210
   ,173,16,208,208,8,169,10,141,190,102,3
   2,78,101,173,0,211,827
YM 710 DATA 41,15,201,15,249,17,10,170,18
   9,81,102,141,3,99,189,82,102,141,4,99,
   32,2,99,169,1,71
TZ 720 DATA 141,184,102,162,0,142,80,102,
   174,80,102,173,184,102,45,9,208,240,17
   ,169,1,157,185,102,141,73
BF 730 DATA 189,102,32,203,101,76,152,99,
   76,65,99,173,184,102,45,10,208,240,14,
   169,1,141,189,102,157,2
XD 740 DATA 185,102,32,203,101,76,152,99,
   24,189,121,102,240,50,125,133,102,201,
   51,240,18,176,16,72,189,1
XS 750 DATA 121,102,73,255,157,121,102,25
   4,121,102,104,76,113,99,201,200,144,13
   ,72,189,121,102,73,255,157,328
ZA 760 DATA 121,102,254,121,102,104,157,1
   33,102,169,0,157,0,208,189,137,102,141
   ,151,102,189,125,102,240,55,591
FA 770 DATA 24,125,137,102,201,245,176,12
   ,157,137,102,141,150,102,32,89,100,76,
   187,99,173,10,210,74,24,476
CI 780 DATA 105,51,174,80,102,157,133,102
   ,169,0,157,0,208,189,137,102,141,151,1
   02,169,0,157,137,102,141,442
RP 790 DATA 150,102,32,89,100,14,184,102,
   238,80,102,173,80,102,201,4,240,3,76,1
   5,99,141,30,208,76,83
DF 800 DATA 95,228,162,0,138,157,0,208,23
   2,224,4,208,248,169,1,141,174,102,141,
   30,208,169,0,141,57,320
PZ 810 DATA 102,141,58,102,141,54,102,169
   ,1,141,8,210,169,0,141,5,210,141,7,210
   ,169,47,141,1,210,0
AY 820 DATA 169,47,141,3,210,169,0,141,0,
   210,141,59,102,141,2,210,141,60,102,23
   8,174,102,162,0,189,913
KE 830 DATA 141,102,24,125,129,102,201,20
   ,144,7,201,235,176,3,157,141,102,169,0
   ,157,0,208,232,224,4,917
MF 840 DATA 208,228,24,173,59,102,105,2,1
   41,0,210,141,59,102,238,59,102,173,59,
   102,141,2,210,173,141,871
EB 850 DATA 102,141,4,208,173,144,102,141
```

```
   ,7,208,76,95,226,174,80,102,189,153,10
   2,133,206,169,0,133,205,146
MO 860 DATA 170,172,151,102,145,205,200,2
   08,200,232,224,8,208,246,172,150,102,1
   62,0,189,8,104,145,205,200,46
WQ 870 DATA 200,200,232,224,8,208,243,96,
   173,144,102,201,52,144,49,169,254,133,
   207,76,162,100,173,141,102,839
QU 880 DATA 201,202,176,35,169,2,133,207,
   76,162,100,162,0,189,141,102,24,101,20
   7,157,141,102,232,224,4,88
HK 890 DATA 208,242,173,141,102,141,4,208
   ,173,144,102,141,7,208,96,173,39,104,7
   2,173,31,104,72,162,6,114
KG 900 DATA 189,24,104,157,25,104,189,32,
   104,157,33,104,202,16,241,104,141,24,1
   04,104,141,32,104,96,72,717
LU 910 DATA 138,72,162,0,189,157,102,141,
   10,212,9,192,141,22,208,232,224,16,208
   ,240,169,17,141,27,208,954
YK 920 DATA 169,134,141,10,212,141,22,208
   ,169,132,141,23,208,169,130,141,10,212
   ,141,24,208,173,133,102,141,248
YP 930 DATA 0,208,173,134,102,141,1,208,1
   73,135,102,141,2,208,173,136,102,141,3
   ,208,169,54,141,0,2,105
HX 940 DATA 169,101,141,1,2,104,170,104,6
   4,72,141,10,212,141,10,212,141,10,212,
   173,142,102,141,5,208,893
UJ 950 DATA 173,143,102,141,6,208,104,64,
   169,1,141,173,102,173,141,102,141,146,
   102,141,5,208,173,144,102,998
QK 960 DATA 141,147,102,141,6,208,160,215
   ,140,148,102,162,0,189,175,102,153,0,1
   07,200,232,224,9,208,244,513
OP 970 DATA 96,173,148,102,141,151,102,56
   ,173,148,102,141,151,102,233,8,201,28,
   176,21,169,0,141,173,102,551
JC 980 DATA 172,148,102,162,0,170,153,0,1
   07,200,232,224,9,208,247,96,141,148,10
   2,141,150,102,169,0,141,875
KH 990 DATA 152,102,174,151,102,172,150,1
   02,189,0,107,153,0,107,93,0,107,157,0,
   107,232,200,238,152,102,924
KM 1000 DATA 173,152,102,201,9,208,232,96
   ,162,3,254,106,103,189,106,103,201,26,
   208,8,169,16,157,106,103,117
VF 1010 DATA 202,16,238,96,96,7,0,7,0,7,0
   ,7,0,7,0,7,0,42,40,45,43,43,36,40,0,96
HA 1020 DATA 42,39,0,41,42,33,40,42,0,8,0
   ,8,0,8,0,8,0,8,0,8,7,0,50,33,40,553
JS 1030 DATA 37,0,47,36,48,49,45,35,50,0,
   8,0,0,7,0,41,33,40,51,33,50,36,40,0,41
   ,288
KR 1040 DATA 39,47,42,49,33,40,36,0,8,0,8
   ,0,8,0,0,0,0,0,0,0,0,0,0,0,0,590
OH 1050 DATA 14,30,46,62,120,120,120,120,
   132,132,132,132,131,128,126,123,0,5,99
   ,5,99,5,99,5,99,674
ZU 1060 DATA 5,99,224,101,224,101,148,100
   ,5,99,224,101,224,101,134,100,5,99,224
   ,101,224,101,5,99,1,523
ST 1070 DATA 255,255,1,1,1,1,1,0,0,0,0,0,
   0,0,0,253,251,5,3,120,120,120,120,132,
   132,294
QJ 1080 DATA 132,132,0,0,0,0,0,0,0,0,0,0,
   0,0,108,109,110,111,0,2,4,6,8,10,12,38
ZC 1090 DATA 14,14,12,10,8,6,4,2,0,0,0,36
   ,36,36,0,36,36,0,0,36,0,0,0,0,0,324
HY 1100 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,0,0,0,0,0,0,0,0,0,0,324
IB 1110 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,0,0,0,0,0,0,0,0,0,0,324
OP 1120 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,0,0,112,66,191,103,16,128,71,91,102
AC 1130 DATA 103,32,68,111,103,68,111,103
   ,68,111,103,68,111,103,68,111,103,68,1
   11,103,68,111,103,68,111,390
JV 1140 DATA 103,68,111,103,68,111,103,68
   ,111,103,68,111,103,68,111,103,68,111,
   103,68,111,103,68,111,103,749
BN 1150 DATA 68,111,103,68,111,103,68,111
   ,103,68,111,103,68,111,103,196,111,103
   ,68,111,103,68,111,103,68,201
JB 1160 DATA 111,103,68,111,103,65,0,103,
   34,37,33,41,42,35,39,38,0,41,35,39,40,
   36,0,16,16,387
CN 1170 DATA 16,16,16,5,4,3,4,3,4,3,4,3,4
   ,3,4,3,4,3,4,3,4,3,4,3,4,514
RD 1180 DATA 3,4,3,4,3,4,3,4,3,4,3,4,3,4,
   3,4,3,6,7,0,7,0,7,0,7,607
QN 1190 DATA 0,7,0,7,0,7,0,7,0,43,33,38,3
   6,0,39,44,36,40,0,8,0,8,0,0,8,968
OK 1200 DATA 0,8,0,8,0,8,0,8,46,45,43,46,
   0,41,35,39,40,36,0,16,16,16,16,16,0,45
   1
WX 1210 DATA 0,34,37,33,41,42,36,40,41,0,
   0,0,0,2,0,2,0,2,0,2,0,0,0,0,0,763
YT 1220 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,0,0,0,0,0,0,0,0,0,0,763
GB 1230 DATA 0,0,0,0,0,0,126,153,165,219,
   219,165,153,126,24,153,189,231,219,255
   ,165,60,155,108,108,756
RB 1240 DATA 155,230,57,57,230,230,57,57,
   230,155,108,108,155,3,3,3,3,3,3,3,3,19
   2,192,192,192,377
GR 1250 DATA 192,192,192,192,56,28,126,12
   7,126,28,56,0,14,28,63,127,63,28,14,0,
   0,112,56,24,24,245
LL 1260 DATA 56,112,0,126,153,165,219,219
   ,165,153,126,0,24,24,126,24,24,0,0,0,0
   ,0,0,0,24,985
NM 1270 DATA 24,48,0,0,0,126,0,0,0,0,0,0,
   0,0,0,24,24,0,0,6,12,24,48,96,64,481
GR 1280 DATA 0,124,254,206,214,214,230,25
   4,124,24,56,120,56,56,56,254,254,60,12
   6,102,14,28,56,254,254,871
TS 1290 DATA 254,254,28,56,28,206,254,124
   ,12,28,60,108,206,254,254,12,254,254,2
   24,252,14,206,254,124,60,651
GD 1300 DATA 124,224,252,198,198,254,124,
   254,254,14,28,56,112,112,112,124,254,1
   98,124,198,198,254,124,124,254,819
BN 1310 DATA 198,126,14,28,56,112,0,0,24,
   24,0,24,24,0,0,0,24,24,0,24,24,48,6,12
   ,24,635
TU 1320 DATA 48,24,12,6,0,0,0,126,0,0,126
   ,0,0,96,48,24,12,24,48,96,0,0,60,102,1
   2,499
UO 1330 DATA 24,0,24,0,0,60,102,110,110,9
   6,62,0,240,248,204,230,118,126,102,238
   ,240,248,204,230,118,633
LF 1340 DATA 220,198,252,120,254,230,192,
   224,118,62,30,120,254,226,248,224,114,
   62,30,96,224,224,224,226,118,923
TD 1350 DATA 62,30,192,227,247,255,219,19
   5,99,231,120,254,238,198,230,118,54,30
   ,240,248,204,230,246,220,206,516
OQ 1360 DATA 206,252,230,226,120,28,142,1
   98,254,254,254,56,28,28,28,28,28,120,2
   54,230,192,238,230,126,62,328
QD 1370 DATA 198,198,198,230,246,254,124,
   56,126,0,126,60,28,30,62,126,231,231,2
   47,255,255,247,231,231,254,572
BR 1380 DATA 254,230,224,252,248,224,224,
   200,236,252,220,204,204,204,220,238,19
   8,214,214,254,254,238,198,206,220,202
JW 1390 DATA 248,240,248,220,206,206,240,
   248,220,206,198,238,124,248,0,0,0,0,0,
   0,0,0,0,0,0,292
NL 1400 REM * 2475BYTES
RP 1410 REM LIST TO PRINTER BLAST.BAS
OC 1420 LPRINT "START OF BASIC LOADER.":L
   PRINT :LPRINT
QU 1430 FOR N=100 TO 360 STEP 10
EL 1440 LIST "P:",N,N:LPRINT ""
HP 1450 NEXT N
ZB 1460 LPRINT "START OF MACHINE CODE DAT
   A.":LPRINT :LPRINT
PM 1470 FOR N=1330 TO 1390 STEP 10
EX 1480 LIST "P:",N,N:LPRINT ""
IB 1490 NEXT N
MA 1500 LPRINT :LPRINT :LPRINT "END OF PR
   OGRAM"
```

CAN DAVID BEAT GOLIATH?

CAN COLOSSUS ON THE XL/XE BEAT COLOSSUS ON THE ST? JOHN S DAVISON REFEREES AS THEY SLOG IT OUT

About eighteen months ago Martin Bryant caused quite a stir when he released his Colossus 4 (C4) chess program on the Atari 8-bit machines. In competitions it thrashed 22 other leading home computer chess programs, including White Knight, Sargon III and Cyruss II, so it is obviously a very capable performer. I wondered how I could possibly review it, as even the old Atari chess cartridge can beat me!

The recent release of Colossus X (CX) for the ST gave me an idea. Why not use CX on the ST to tell me the moves to make against C4 on the 130XE? That should bolster the old brainpower up a bit! And not only would it match program against program, but also 8-bit against ST - a real battle of the giants, or should that be David versus Goliath?

Both programs are very similar in features offered, but as expected the ST version is faster, and graphically and sonically superior. The description below applies to both versions unless otherwise stated.

MULTILINGUAL CHESS

Unlike C4, CX is multi-lingual and has English, French, German, Spanish, and Italian options. The default is chosen and stored the very first time you play, but can be changed at any time if needed. There's also a language file editor provided, so you can customise it to any other language you want.

On bootup you're presented with a 3D view of the board and chess pieces, and CX allows you to tilt and rotate it to your liking. If preferred you can easily switch to a 2D view. The board edges are lettered and numbered, providing the standard algebraic reference notation for each square. Various areas on the screen are used for action prompts, messages, and algebraic display of the computer's latest move.

A second screen, toggled via the spacebar, shows a wealth of information about the game in progress. This includes players' names, chess clocks showing elapsed times for each player's moves, and a list of each player's last seven moves.

WATCH COLOSSUS THINK!

You can also witness the Colossus 'thought processes'. This shows his prediction of YOUR next move, lookahead search depth to find HIS best move, current line under investigation, number of different positions considered, and best line found so far. This last item is shown in terms of physical moves plus a quantified evaluation of them, or put simply: whether he thinks he's winning or losing.

This screen, of course, provides vital information about what course Colossus thinks the game will take. In my case he credits me with a lot more chess sense than I've got! C4 does this evaluation at about 330 moves PER SECOND, while CX works at around 500 per second. Just like a human opponent Colossus continues thinking about his moves while you're considering yours. So - ponder too long and you'll find he's had time to consider oodles of additional possibilities.

Obviously, when up against this level of mental horsepower, you may not win very often (or ever, in my case!). Thankfully, the author has provided facilities for giving Colossus a lobotomy if you feel your ego threatened. These include such jolly japes as time limiting his moves; forcing him to make your move for you; preventing him from thinking ahead during your turn, from predicting your next move, and from using his book of opening moves (3000 in C4, 11000 in CX). You can also interrupt his train of thought and force him to move immediately. Perhaps there's hope for me yet?

CX also has a learning capability - he can extend his book of 11,000 opening moves with promising new ones found during play, making him stronger the more he plays. This book is held on disk and there's a book editor provided for experts to set up their own book openings for special purposes.

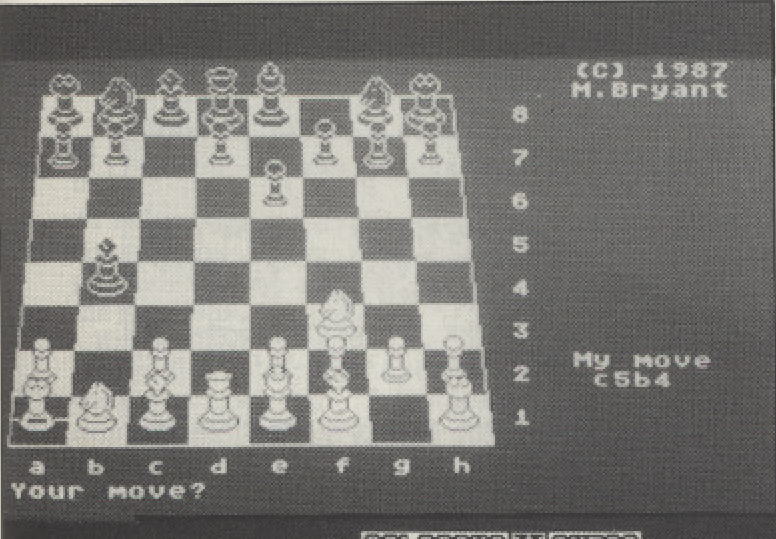
AT YOUR COMMAND

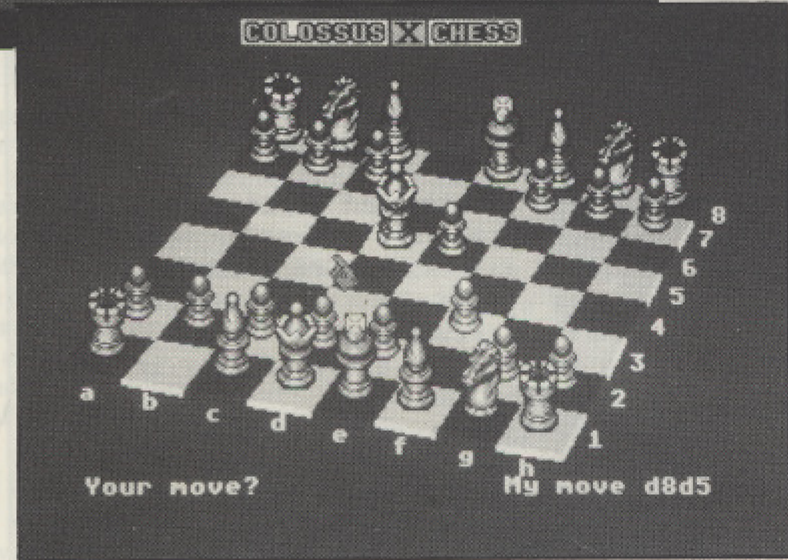
There are lots of other commands too, giving you a wide range of control. C4 has extra 'cosmetic' commands to change screen colours to your taste, but with CX you're stuck with those provided.

Both programs have setup commands permitting you to arrange the pieces for any legal position, to choose black or white pieces, and to change the board orientation - with CX having options for playing right-to-left and left-to-right as well as the up/down options of C4. You can also set the playing mode, choosing from Tournament, Average, Equality, Infinite and Problem modes.

Tournament mode allows you to specify the number of moves to be made in given time periods. Average mode lets you set an overall average time per move. Different values can be set for you and the computer, introducing another method of handicapping. In Equality mode Colossus tries to match his playing speed to yours, while in Infinite mode he searches ALL combinations of moves (up to twelve ahead) to find the best one. This could take a l-o-n-g time, so there's an interrupt mechanism provided to

COLOSSUS 4
8-Bit: Disk £14.95, Cassette £9.95
COLOSSUS X
ST: £24.95
Both from CDS Software





force him to use the best one found so far if you get fed up of waiting.

Problem mode is used for solving chess problems of the type often seen in newspaper chess columns. First, there's the normal 'White to move and mate Black in x moves' type, as handled by most chess programs. But then Colossus has the unique ability to solve the more difficult 'selfmate' and 'helpmate' problems, too.

C4 makes minimal use of sound, being limited to a few optional beeps and burbles at appropriate points. CX can do far more though, with a choice of beeps, music, speech, or silence. On selecting music you can then choose to hear classical pieces by Chopin, Debussy, Beethoven, or Gounod playing away in the background. Personally, I found this distracting and much preferred the speech option. This uses a software driven speech synthesiser to speak the prompts and messages appearing on the main screen, including each move CX makes.

ACTION REPLAY

Colossus stores every move made in a game, so you can step backwards and forwards through them at will. This makes it possible to see an action replay, recover from a disastrous move, or to go back several moves and try out a different strategy.

There's game save and load features so you don't have to finish a game at one sitting. It also allows you to build a library of problems and games, with 19 problems supplied with C4 (disk version only) and 10 in CX to get you started. You can load these and solve them yourself, or let Colossus show you a step-by-step solution. In addition, complete games are provided (34 with C4 disk only, 29 with CX), some from matches involving famous players like Korchnoi and Karpov.

Finally, there are a few novelty features. You can give Colossus severe brainache by making him play against himself. Or, you can scramble the contents of your own cranium by using 'invisible' mode, making either or both sets of pieces invisible, thus simulating blindfold chess.

IN PLAY

Moves are controlled in three ways: algebraic notation input via the keyboard; arrow keys to directly position the cursor on 'from' and 'to' squares; or with joystick on C4 and mouse on CX. For beginners there's a Help feature, where Colossus will show you all the legal moves available for any piece on the board. And as you'd expect, he handles castling, en passant captures and promotions without problem.

With C4 the moves are instantaneous, with the piece disappearing from one square and instantly reappearing in the chosen one. In CX, the piece slides to its chosen destination making the move easier to follow. Also, in CX you can change the normal cursor to a large hand which can pick up a selected piece and manually move it to the required square. Neat, but slower than the sliding method.

In play, both versions of Colossus behaved exactly as I feared. Slugged down to micro-cretin level they still wiped the floor with me when I played unaided. Actually, CX can be set to play to LOSE or DRAW as well as win, but pride wouldn't let me use this option!

THE BATTLE

So, with dented ego I played the two machines off against each other. The first review copy of CX I had was very unreliable and crashed at the slightest provocation. It seemed this was an early pre-release copy, which didn't work properly on older ST's like mine. CDS promptly replaced it with the latest version which was much better, but still crashed occasionally, usually when selecting menu items. C4 behave impeccably.

Twelve games were played during the review period. They ranged in duration from a short game of 53 moves in 23 minutes to a fairly lengthy 186 moves in 70 minutes. I found the results surprising - C4 won 5, CX won 5, and two were drawn. C4's victories were always preceded by CX resigning before being checkmated, but I forced each game through to its conclusion so the victories were complete. When C4 lost he always played through to the bitter end and doesn't seem to have the ability to resign.

Unexpectedly, CX seemed slower in response than C4, although this could have been the subjective effect of CX's frequent reference to its disk based opening moves book during the early part of a game. C4's book is memory resident, so operates quicker.

AND THE WINNER IS ....

On the evidence found during the review there's not much to choose between these programs. However, I'm awarding a moral victory to C4 (loud cheers from the 8-bit camp!) considering its performance against CX's superior speed and facilities.

Both programs are great fun and tremendous value for money, but the additional £10 for CX does buy some nice extras. I particularly liked its clearer graphics, adjustable board view, and amusing speech option. Advanced players will appreciate its more esoteric features too. But whether expert or beginner, ST or 8-bit user, you can buy either version confident that you're getting state-of-the-art code. If you need a chess program, you need Colossus. ●

FINDER

A utility from Robert De Letter to trace keywords and phrases in your programs

In the last issue of Page 6 there was a program for Flight Simulator II that was set up specifically for a printer but the instructions stated that you could change all LPRINT commands to PRINT if you were not lucky enough to own a printer. Quite easy to do provided you can find all the LPRINT statements, but you are bound to miss some, don't you always?

There must be many times when it would be useful to change a particular statement or wording in a listing and it would be handy to have the computer show you every occurrence of the word you are looking for. With this in mind FINDER was born. There are utilities around that will automatically change variable names for you but not keywords or phrases. Whilst FINDER doesn't actually change the program for you, it will find anything and allow you to note the line number so that you can edit a program in the normal way.

Type in FINDER and save a copy. When you want to use it make a copy of the program you wish to change, in LISTed format and save that file with the filename "D:LISTED.FMT". If you don't like that filename you can change the two occurrences of the filename in the program to whatever you wish (use FINDER!). Now run the FINDER program, answer whether you want a printed report or just to the screen, and type in whatever you want to find. All occurrences will be shown with the phrase highlighted in inverse on the screen. When you have finished the temporary LISTED.FMT program will be deleted from your disk.

I hope that you find FINDER useful in changing your programs. Don't be afraid to improve on it, for instance by allowing you to choose from several filenames. The cleverer programmers among you might also come up with a way to actually get FINDER to amend your program for you!

```
WO 1 REM ********************************
NI 2 REM *            FINDER            *
HD 3 REM *       for ATARI XL/XE        *
XT 4 REM *              by              *
AZ 5 REM *      Robert De Letter        *
SS 6 REM * ---------------------------- *
KD 7 REM * PAGE 6 MAGAZINE - ENGLAND    *
WV 8 REM ********************************
NO 9 REM
KK 10 DIM S$(130),S2$(130),L$(130),W$(30)
   :W$="     ----- Press any key -----":P
   OKE 752,1
OK 20 CLOSE #2:OPEN #2,4,0,"K:":CLOSE #3:
   TRAP 30:CLOSE #1:OPEN #1,4,0,"D:LISTED
   .FMT":TRAP 200:PR=0:GOTO 50
MF 30 ? "K↓↓Please save the program you w
   ant to   examine to disk in LISTed for
   mat"
LT 40 ? "with the name 'LISTED.FMT'":CLOS
   E #1:CLOSE #2:TRAP 40000:POKE 752,0:CL
   R :END
HP 50 ? "K↓↓Search for:":POKE 752,0:? :IN
   PUT S$:? :POKE 752,1:? "Print to scree
   n and printer ?  Y/N ":GET #2,K
WR 60 IF K=89 THEN PR=1:? :? "Set printer
    on line ...":? :? W$:GET #2,K:OPEN #3
   ,8,0,"P:"
FN 70 ? "K":? :FOR A=1 TO LEN(S$):IF ASC(
   S$(A,A))>127 THEN S2$=S$
OR 80 NEXT A:IF S2$=S$ THEN 100
MC 90 FOR A=1 TO LEN(S$):S2$(A,A)=CHR$(AS
   C(S$(A,A))+128):NEXT A
ED 100 INPUT #1;L$:B=1:L=LEN(S$):IF LEN(L
   $)<LEN(S$) THEN 100
CM 110 IF L$(B,L)=S$ THEN 140
FC 120 B=B+1:L=L+1:IF L>LEN(L$) THEN 100
LX 130 GOTO 110
HF 140 L$(B,L)=S2$:B=B+LEN(S$):L=B+LEN(S$
   )-1:IF L>LEN(L$) THEN 180
CU 150 IF L$(B,L)=S$ THEN 140
QM 160 B=B+1:L=L+1:IF L>LEN(L$) THEN 180
NX 170 GOTO 150
ME 180 POKE 766,1:? L$:IF PR THEN ? #3;L$
   :? #3
GY 190 POKE 766,0:? :IF PR<>1 THEN ? W$:?
    :GET #2,K:GOTO 100
MN 195 GOTO 100
NM 200 ? "END OF FILE, another search ? -
    Y/N":GET #2,K:IF K=89 THEN 20
HZ 210 CLOSE #1:CLOSE #2:CLOSE #3:TRAP 40
   000:XIO 33,#1,0,0,"D:LISTED.FMT":POKE
   752,0:CLR :END
```

MERAK WINNERS

Not too many entries for the competition probably because I unintentionally made the first question too hard (the others were a doddle). There were only three entries that were correct and the winners are probably the 'old men' of the Atari world (like the Editor!). I can remember a young Jeff Minter at a PCW Show held at the Barbican showing off his first game for the Atari called Turboflex (Gridrunner was the next and his first big Atari hit) but it looks like only three others went along (funny there seemed to be millions there!). Apologies to all the youngsters who were probably only just in Nursery school at the time (yes, Jeff, you are getting old!), we'll try to make it easier next time.

Anyway the three who got it right were D. Stanford of Kinross, Phil Brown of Newquay (definitely one of the old 'uns!) and Jon Hancock from Newcastle. We promised 5 copies as prizes so we dipped into the hat for another couple who put down Gridrunner as the first answer and the lucky two were Richard Osborn from Leeds University and D.

UPDATE

MUSIC BOX (ISSUE 36): There was a problem with line 2275 of this listing which got chopped off at the end because the line was so long. The last statement on the line should read GOSUB 85. If you type it in you will have to use abbreviations for the keywords. Alternatively you can split the line as follows

```
AQ 2275 GOSUB 1500
KJ 2276 SOUND Q0,Q0,Q0,Q0:GRAPHICS Q4:SET
   COLOR Q2,Q2,Q2:SETCOLOR Q4,Q6,Q4:COLOR
   Q1:PLOT Q15,Q8:DRAWTO Q64,Q8:GOSUB 85
```

MACHINE CODE LIBRARY

Stephen Williamson starts a new series for programmers in machine code or BASIC with ready to run routines that you can use in your own programs

```
10 ;MACHINE CODE LIBRARY
20 ;by Steve Williamson
30 ;for PAGE 6
40 ;
50 ;#1.1 - CLEAR MEMORY
60 ;
70 ;-----------------------------------
80        *=  20000
90        .OPT OBJ
0100 START = 1536
0110 FINISH = 1791
0120 ;-----------------------------------
0130 ;Store START and FINISH address
0140 ;lobyte and hibyte in zero page
0150 ;-----------------------------------
0160      LDA #START&255
0170      STA 203
0180      LDA #START/256
0190      STA 204
0200      LDA #FINISH&255
0210      STA 205
0220      LDA #FINISH/256
0230      STA 206
0240 ;--------------------------------
0250 ;Fill RAM area with zeros
0260 ;--------------------------------
0270 S1   LDY #0
0280 L1
0290      LDA #0
0300      STA (203),Y
0310      LDA 203
0320      CMP 205       Check that loop
0330      BNE L2        has reached
0340      LDA 204       finish
0350      CMP 206
0360      BNE L2
0370      RTS           if so return
0380 ;                  from subroutine
0390 L2
0400      CLC
0410      INC 203       if not increase
0420      LDA 203
0430      CMP #0
0440      BNE L3
0450      INC 204
0460 L3   CPY #255      force jump to
0470      BNE L1        start of loop L1
```

```
10 ;MACHINE CODE LIBRARY
20 ;by Steve Williamson
30 ;for PAGE 6
40 ;
50 ;#1.2 - CLEAR MEMORY: BASIC VERSION
60 ;Load to string CLEAR$
70 ;Call with:
80 ;A=USR(ADR(CLEAR$),START,FINISH)
90 ;-----------------------------------
0100 CLEAR = 20000
0110 ;
0120      *=  CLEAR
0130      .OPT OBJ
0140 ;-----------------------------------
0150 ;Store START and FINISH address
0160 ;hibyte and lobyte in zero page
0170 ;-----------------------------------
0180      PLA
0190      PLA
0200      STA 204
0210      PLA
0220      STA 203
0230      PLA
0240      STA 206
0250      PLA
0260      STA 205
0270 ;--------------------------------
0280 ;Fill RAM area with zeros
0290 ;----------------------   -----
0300      LDY #0
0310 L1
0320      LDA #0
0330      STA (203),Y
0340      LDA 203
0350      CMP 205       Check that loop
0360      BNE L2        has reached
0370      LDA 204       finish
0380      CMP 206
0390      BNE L2
0400      RTS           if so return
0410 ;                  from subroutine
0420 L2
0430      CLC
0440      INC 203       if not increase
0450      LDA 203
0460      CMP #0
0470      BNE L3
0480      INC 204
0490 L3   CPY #255      force jump to
0500      BNE L1        start of loop L1
```

Above: CLEAR routine in Assembly
Right: Source code for CLEAR in Basic

Most machine code programmers build up a library of subroutines that perform frequently needed tasks such as moving sections of RAM, setting up the Atari Player Missile system, saving and accessing disk files etc. This series will provide you with a library of machine code subroutines that will easily fit into machine code programs and for non machine code programmers, I've adapted the library routines for use within BASIC programs, so that you can take advantage of the extra speed that machine code provides. It is not necessary to know anything about machine code programming to use them, but a good knowledge of BASIC helps.

All the assembly listings can be used on both the MAC/65 (the best Assembler on the market for the Atari 8-bit) and the Atari Assembler Editor (sluggish, but it does the job), and can be easily adapted for use with any Atari assembler program. HEX numbers are not used in the listings as this makes it more difficult to understand for the inexperienced machine code programmer - and besides my brain likes thinking in decimal.

CLEARING AND MOVING RAM

The first two library routines will erase sections of RAM and move portions of RAM from one address to another. There are many uses for these routines: erasing and moving player missiles, clearing sections of screen RAM, resetting registers to zero, copying sections of ROM to RAM, setting up redefined character sets - and many more.

Each routine starts at memory location 20000, but can be easily changed to start at any section of RAM. The routines contain no JMP or JSR instructions which mean that they are completely relocatable i.e. they can be moved to any section of RAM without problems. This also means that when constructing the BASIC versions the routines can be held in string variables thus avoiding any clash with other sections of a BASIC program.

ADAPTING THE ROUTINES

To adapt the Clear Memory routine for your particular application change the START and FINISH labels. These, as their name suggests, define the start and finish points of the area of RAM to be cleared. If you want to call up the routine more than once using different values for START and FINISH then you must first load locations 203 and 204 with the lobyte and hibyte values of your new start address, and locations 205 and 206 with the lobyte and hibyte values of the finish address, using a routine similar to that found in lines 160 to 230 of the assembly listing. Then access the routine at the memory location represented by the label S1 (line 270 of the clear memory listing).

The move memory routine can be adapted in a similar way - all you need to do to customise the routine to your specifications is to alter the FROM, TOO and NUMBER labels. The routine will then copy the specified number of bytes from one area of RAM to another.

BASIC VERSIONS

The source code for the BASIC versions of the routines is similar to the pure machine code versions, except that the start and finish parameters etc. are pulled of the stack with the PLA instruction and then stored in zero page. Remember when using parameters passed from a BASIC program, the first PLA instruction gives the number of parameters, the second the hibyte value of the first parameter, the third the lobyte value of the first parameter and so on.

The BASIC program subroutines load the machine code data into string variables and are called from within a BASIC program using the command:

```
A=USR(ADR(STRING$))
```

List the BASIC subroutines to disk or cassette using the LIST "C:" or LIST "D:xxxxxxxx.xxx" commands, then attach them to the end of your program by simply entering them using the ENTER "C:" or ENTER "D:xxxxxxxx.xxx" command. To set up the clear routine use GOSUB 30000, and GOSUB 31000 for the move routine.

To call the clear routine use the command:

```
A=USR(ADR(CLEAR$),START,FINISH)
```

where START and FINISH define the area of RAM to be cleared.

The move routine is called by:

```
A=USR(ADR(MOVE$),FROM-
,TOO,NUMBER)
```

where FROM is the start of the RAM area to be copied, TOO is the area to be copied to and NUMBER is the number of bytes to be copied.

```
10 ;MACHINE CODE LIBRARY
20 ;by Steve Williamson
30 ;for PAGE 6
40 ;
50 ;#1.3 - MOVE RAM
60 ;
70 ;----------------------------------
80        *=  20000
90        .OPT OBJ
0100 FROM =  40960
0110 TO   =   30000
0120 NUMBER = 600
0130 ;---------------------------------
0140 ;Store FROM,TO AND NUMBER address
0150 ;lobyte and hibyte in zero page
0160 ;---------------------------------
0170      LDA #FROM&255
0180      STA 203
0190      LDA #FROM/256
0200      STA 204
0210      LDA #TO&255
0220      STA 205
0230      LDA #TO/256
0240      STA 206
0250      LDY #NUMBER&255
0260      LDX #NUMBER/256
0270      DEY           Decrease NUMBER
0280      CPY #255      by 1
0290      BNE A1
0300      DEX
0310 A1   STY 207
0320      STX 208
0330 ;------------------------------
0340 ;Copy RAM area
0350 ;------------------------------
0360 S1   LDY #0
0370 L1   LDA (203),Y
0380      STA (205),Y
0390      DEC 207       Decrease NUMBER
0400      LDA 207       and
0410      CMP #255      Check that it
0420      BNE L2        has reached zero
0430      DEC 208
0440      LDA 208
0450      CMP #255
0460      BNE L2        if so return
0470      RTS           from subroutine
0480 L2   INC 203
0490      LDA 203
0500      CMP #0        if not then
0510      BNE L3        increase FROM
0520      INC 204       and TO
0530 L3   INC 205
0540      LDA 205
0550      CMP #0
0560      BNE L4
0570      INC 206
0580 L4   CPY #255      force return to
0590      BNE L1        loop L1
```

Above: MOVE routine in Assembly

Right: Source code for MOVE in Basic

```
10 ;MACHINE CODE LIBRARY
20 ;by Steve Williamson
30 ;for PAGE 6
40 ;
50 ;#1.4 - MOVE RAM - BASIC VERSION
60 ;Load to string MOVE$
70 ;Call with:
80 ;A=USR(ADR(MOVE$),FROM,TO,NUMBER)
90 ;-----------------------------------
0100 MOVE =  20000
0110      *=  MOVE
0120      .OPT OBJ
0130 ;---------------------------------
0140 ;Store FROM,TO and NUMBER address
0150 ;hibyte and lobyte in zero page
0160 ;---------------------------------
0170      PLA
0180      PLA
0190      STA 204
0200      PLA
0210      STA 203
0220      PLA
0230      STA 206
0240      PLA
0250      STA 205
0260      PLA
0270      TAX
0280      PLA
0290      TAY
0300      DEY           Decrease NUMBER
0310      CPY #255      by 1
0320      BNE A1
0330      DEX
0340 A1   STY 207
0350      STX 208
0360 ;--------------------------------
0370 ;Copy RAM area
0380 ;--------------------------------
0390      LDY #0
0400 L1   LDA (203),Y
0410      STA (205),Y
0420      DEC 207       Decrease NUMBER
0430      LDA 207       and
0440      CMP #255      Check that it
0450      BNE L2        has reached zero
0460      DEC 208
0470      LDA 208
0480      CMP #255
0490      BNE L2        if so return
0500      RTS           from subroutine
0510 L2   INC 203
0520      LDA 203
0530      CMP #0        if not then
0540      BNE L3        increase FROM
0550      INC 204       and TO
0560 L3   INC 205
0570      LDA 205
0580      CMP #0
0590      BNE L4
0600      INC 206
0610 L4   CPY #255      force return to
0620      BNE L1        loop L1
```

OVERLEAF - THE ROUTINES IN BASIC PLUS A GREAT DEMO SHOWING HOW THEY MIGHT BE USED

THE ROUTINES IN USE

The demonstration program is an example of how to use the subroutines in a BASIC program. The screen is filled with hearts and a message printed on the centre of the screen. The move machine code routine then copies the whole of the screen display to a buffer, or temporary store area. The clear routine then clears the screen display, before the move routine fetches the screen data from the buffer and re-displays it.

The second part of the program copies the standard Atari character set to a section of RAM starting at location 36864. The character set pointer is changed to point to this address (line 220) and then portions of the character set are copied from RAM to ROM to give the scrolling effect.

I hope that these routines prove useful to you. Check out the demonstration listing and try to adapt it to you own use. Next time I'll bring you some more routines that will enhance your programs whether written in Assembly or Basic.

```
WO 1 REM *****************************
YE 2 REM *    MACHINE CODE LIBRARY    *
HD 3 REM *      for ATARI XL/XE       *
RV 4 REM *      Demonstration 1       *
JQ 5 REM *   by Stephen Williamson    *
SS 6 REM * -------------------------- *
KD 7 REM * PAGE 6 MAGAZINE - ENGLAND  *
WV 8 REM *****************************
NO 9 REM
QW 50 GOSUB 30000:GOSUB 31000
HW 60 GRAPHICS 0:SETCOLOR 2,0,0:SETCOLOR
   4,1,4
YE 70 SM=PEEK(88)+256*PEEK(89)
ZP 80 DIM MESS$(12):BUFFER=30000
NV 90 POKE 752,255
GZ 100 A=USR(ADR(CLEAR$),SM,SM+959)
EP 110 FOR I=0 TO 959:POKE SM+I,64:NEXT I
SF 120 POSITION 10,11:? "MACHINE CODE ROU
   TINES"
DY 130 POSITION 10,12:? "     DEMONSTRATIO
   N     ";
NK 140 FOR I=0 TO 5
HS 150 FOR D=0 TO 100:NEXT D
VI 160 A=USR(ADR(MOVE$),SM,BUFFER,960)
XY 170 A=USR(ADR(CLEAR$),SM,SM+960)
HY 180 FOR D=0 TO 100:NEXT D
UK 190 A=USR(ADR(MOVE$),BUFFER,SM,960)
FS 200 NEXT I
TV 210 A=USR(ADR(MOVE$),BUFFER,SM,960)
GK 220 POKE 756,144:A=USR(ADR(MOVE$),5734
   4,36864,1024)
MO 230 FOR I=512 TO 768
WG 240 A=USR(ADR(MOVE$),57344+I,36864+512
   ,256)
EM 250 NEXT I:GOTO 230
VO 30000 REM CLEAR MC ROUTINE
HY 30010 REM by Stephen Williamson
MT 30020 REM for PAGE 6
OM 30030 REM Call with:
QH 30040 REM A=USR(ADR(CLEAR$,START,FINIS
   H)
KS 30050 DIM CLEAR$(48)
UF 30060 FOR I=1 TO 47:READ A
AU 30070 CLEAR$(I,I)=CHR$(A):NEXT I
EF 30080 RETURN
XV 30090 DATA 104,104,133,204,104,133,203
   ,104,133,206,104,133,205,160,0,169,0,1
   45,203,165
LB 30100 DATA 203,197,205,208,7,165,204,1
   97,206,208,1,96,24,230,203,165,203,201
   ,0,208
IH 30110 DATA 2,230,204,192,255,208,224
TL 31000 REM MOVE MC ROUTINE
IA 31010 REM by Stephen Williamson
MV 31020 REM for PAGE 6
OO 31030 REM Call with:
EQ 31040 REM A=USR(ADR(MOVE$),FROM,TO,NUM
   BER)
WZ 31050 DIM MOVE$(75)
YX 31060 FOR I=1 TO 74
WZ 31070 READ A:MOVE$(I,I)=CHR$(A)
GT 31080 NEXT I
EL 31090 RETURN
DY 31100 DATA 104,104,133,204,104,133,203
   ,104,133,206,104,133,205,104,170,104,1
   68,136,192,255
SZ 31110 DATA 208,1,202,132,207,134,208,1
   60,0,177,203,145,205,198,207,165,207,2
   01,255,208
KJ 31120 DATA 9,198,208,165,208,201,255,2
   08,1,96,230,203,165,203,201,0,208,2,23
   0,204
EB 31130 DATA 230,205,165,205,201,0,208,2
   ,230,206,192,255,208,211
```

MACHINE CODE LIBRARY

ABOVE - the CLEAR and MOVE routines in action

```
VO 30000 REM CLEAR MC ROUTINE
HY 30010 REM by Stephen Williamson
MT 30020 REM for PAGE 6
OM 30030 REM Call with:
SK 30040 REM A=USR(ADR(CLEAR$),START,FINI
   SH)
KS 30050 DIM CLEAR$(48)
UF 30060 FOR I=1 TO 47:READ A
AU 30070 CLEAR$(I,I)=CHR$(A):NEXT I
EF 30080 RETURN
XV 30090 DATA 104,104,133,204,104,133,203
   ,104,133,206,104,133,205,160,0,169,0,1
   45,203,165
LB 30100 DATA 203,197,205,208,7,165,204,1
   97,206,208,1,96,24,230,203,165,203,201
   ,0,208
IH 30110 DATA 2,230,204,192,255,208,224
```

The CLEAR routine in BASIC

```
TL 31000 REM MOVE MC ROUTINE
IA 31010 REM by Stephen Williamson
MV 31020 REM for PAGE 6
OO 31030 REM Call with:
BV 31040 REM A=USR(ADR(MOVE$),FROM,TOO,NU
   MBER)
WZ 31050 DIM MOVE$(75)
YX 31060 FOR I=1 TO 74
WZ 31070 READ A:MOVE$(I,I)=CHR$(A)
GT 31080 NEXT I
EL 31090 RETURN
DY 31100 DATA 104,104,133,204,104,133,203
   ,104,133,206,104,133,205,104,170,104,1
   68,136,192,255
SZ 31110 DATA 208,1,202,132,207,134,208,1
   60,0,177,203,145,205,198,207,165,207,2
   01,255,208
KJ 31120 DATA 9,198,208,165,208,201,255,2
   08,1,96,230,203,165,203,201,0,208,2,23
   0,204
EB 31130 DATA 230,205,165,205,201,0,208,2
   ,230,206,192,255,208,211
```

The MOVE routine in BASIC

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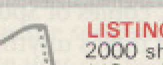
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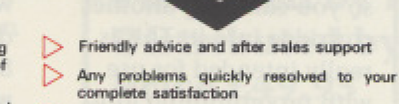


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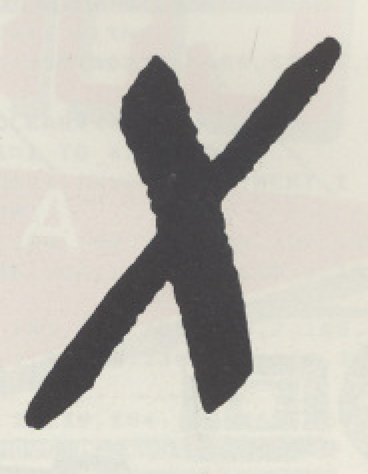


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SpartaDos



reviewed by John S Davison

New products from ICD always send shock waves of excitement around the Atari 8-bit world, and this one is no exception. It's the long rumoured development of ICD's excellent SpartaDOS 3.2 (reviewed in Issue 32) called SpartaDOS X, which takes Atari disk users to new heights in terms of facilities, performance, and operational convenience.

For the uninitiated, SpartaDOS is designed as a replacement for Atari DOS, the disk operating system you would normally use with an Atari disk drive. A disk operating system is a collection of special programs which enable you to store, retrieve, and manage programs and data on disk. Atari DOS is adequate for general purpose use, but more advanced users often wish it had more facilities - which is exactly what SpartaDOS X has in abundance.

ICD have been shipping SpartaDOS X with a temporary manual in the USA, pending the completion of the fully detailed final version. The review copy had the temporary version too, but Frontier Software tell me that all UK copies of SpartaDOS X will be supplied with the final version. If this is anything like previous SpartaDOS documentation it should be first class.

CARTRIDGE BASED

SpartaDOS X is totally different from Atari DOS. Even its storage medium is different - it's CARTRIDGE based, and it's a very special cartridge at that! It uses a whopping 64K of bank switched ROM to hold the code. You've heard of a RAMdisk? Well, this is more like a ROMdisk! 48K of the ROM is mapped out like a disk drive, so if you perform a directory list on it you're shown a list of program files - just as if they were held on disk. As it's a ROM (Read Only Memory) cartridge you can't write anything to it, though.

The main advantages of the cartridge approach over the more usual disk are fast access speed, disk space savings, and sheer convenience. Most DOS systems keep their component programs on disk and these get loaded in when required. If you have only one disk drive you have to either copy the DOS components onto your working disk (taking up valuable disk space) or swap your working disk for the DOS disk every time something needs loading. With SpartaDOS X there's none of this, as everything is available from the cartridge. It's like having an additional high speed disk drive just for SpartaDOS.

The top of the cartridge contains a cartridge slot, so you can plug another cartridge into it. This is really intended for use with programming language cartridges, but I found my original Atariwriter cartridge and all my old favourite game cartridges worked too. The only failure was AtariArtist, which although it would run, seemed unable to do any disk I/O for saving and loading pictures. ICD do warn you that there may be odd programs that won't work with SpartaDOS, so if you have a particularly important program you want to use with it, check before buying.

IBM COMMAND COMPATIBILITY

Unlike Atari DOS, SpartaDOS X is essentially command driven. In use, previous versions of SpartaDOS reminded me of IBM PC-DOS (alright, MS-DOS if you really insist), although its command names were different. ICD have now taken this to its logical conclusion and provided additional alternative command names identical to those in PC-DOS. Note - this does NOT mean SpartaDOS X can run IBM PC programs, just that both systems use the same commands to perform similar functions. Command syntax is very similar too, so now if you learn SpartaDOS X you'll soon feel at home with an IBM PC. This could provide useful experience for people who move on to a PC later in their education or employment.

To prove the point, my seven year old son Peter (admittedly an absolute computer freak!) was able to happily operate my IBM 'PC Convertible' laptop computer after just a few hours use of SpartaDOS X - something he's never done before. This included working with subdirectories, a topic which seems to confuse or even frighten many PC users.

ATARI XF551 SUPPORTED!

One of SpartaDOS's great strengths has always been its support of many different kinds of disk drive. SpartaDOS X can handle single sided disks of 90K single density, 127K 1050 enhanced density, and 180K double density. It also handles double sided, double density 360K drives, including the new Atari XF551 device which even Atari don't fully support yet! RAMdisks and hard disks are supported, and for the adventurous it will also handle 8" and 3.5" drives, assuming you can find an interface with which to attach them. Up to NINE drives may be used at once, in any combination of speed, density, and format.



ICD show that the 8-bit Atari is still at the top with the most comprehensive DOS yet

High speed modifications aren't forgotten either, with support provided for the Happy board and ICD's own US Doubler (reviewed in Issue 32). It even supports high speed operation on the rarely seen Indus GT drives. And for even more performance it can use the 130XE's bank switched memory as a disk cache!

You don't have to worry about using different formats either, as SpartaDOS automatically recognises them. It had no problems reading any of my disks, and switched between single, enhanced, and double density disks in SpartaDOS and Atari DOS formats completely transparently. It also coped with standard and skewed sector tracks for US Doubler high speed data transfer without trouble.

At disk level SpartaDOS X uses volume labels, and also provides support for subdirectories (like folders on the ST) nested to any level you want, with up 1,432 entries in each - great for hard disk users. Commands are available to create and delete subdirectories, and to set the access path through to the level needed. Files can then be freely created, copied, and deleted in any subdirectory as required.

Subdirectory operations may be performed by directly entered commands or via a menu system, itself invoked by a command. This displays several scrollable windows showing a disk's subdirectory 'tree' structure and the files contained in any chosen 'branch' of it. Menu selections are available for viewing, printing, renaming, deleting, and copying any file shown. Files can be handled singly or as a batch, as you can selectively tag/untag files in the list and then perform a given operation on the whole group - a really useful facility. Menu selections are also available for creating and deleting subdirectories at any level.

SpartaDOS has time and date stamping for files, provided by an internal software driven clock. Current time and date can be permanently displayed on an extra line at the top of the screen, where it's updated every second. Unlike earlier versions of SpartaDOS systems. ICD can also supply a battery driven clock cartridge called R-TIME 8. This plugs into the SpartaDOS X cartridge, removing the need to set the date and time at every bootup.

BUILT-IN ARCHIVING

Another feature in SpartaDOS X is its ARC facility, based on and compatible with the system used on the IBM PC and many other systems. It can take a group of files and compress them into a single archive file which takes up far less disk space than the originals. You can even encrypt them if needed. When required for use, they can be decompressed and split back into their original form. You're likely to meet this particularly if you dial into bulletin board systems, where much of the material is held in ARC format to save space and cut download time.

Amongst its many other features are commands for file protection; for hiding files from prying eyes; for finding files you've stored somewhere in a subdirectory structure, but can't remember where; for unerasing files you've accidentally deleted; and for displaying files in hexadecimal and ASCII form. You can use batch files to execute sequences of SpartaDOS commands, to which up to nine user defined parameters can be passed. I/O redirection is also available for routing command input and output to devices other than the defaults. The cartridge also contains a file called XEP80.SYS, which presumably means you can use SpartaDOS X in 80 column mode using the Atari XEP80! The documentation did not mention this feature but Frontier Software have since confirmed that the XEP 80 is supported.

Most commands available in previous versions of SpartaDOS are here, although a few are missing or replaced by new functions. It's still possible to run external commands from disk, so you could run old disk based SpartaDOS commands or even write your own if you wished.

For later release there's also the possibility of a SpartaDOS Tool Kit, supplying additional utility programs such as a disk sector editor. And, if necessary, ICD will provide cartridge upgrade chips at nominal cost if the base code has to change to correct bugs, etc. Both should be available through Frontier Software.

CONCLUSIONS

Once again ICD have triumphed, bringing us yet another superb product that opens up a whole new world to the 8-bit user. They deserve the support and undying gratitude of every serious Atari user in the land, as do Frontier Software for making ICD products available in the UK at such reasonable prices. If you're thinking about upgrading your Atari's disk facilities, then make SpartaDOS X a priority purchase. It's probably the shrewdest move you'll ever make.

SpartaDOS X
Published by ICD
Distributed by Frontier Software
Price £49.95

sunplotter



find out where the sun shines and what time it is anywhere in the world

Sunplotter is a somewhat different application that may be useful for radio amateurs or for educational study and, hopefully it will give yousome insight into how to draw detailed maps without using huge amounts of precious memory.

Sunplotter will show the passage of the Sun over the earth and the user can discover the latitude and longitude of any place in the world and also discover the local time. When the date and time of day are entered, the program will draw an outline map of the world showing all the areas covered by the Sun's light. These areas, you will find, not only move according to the hour but, as the map is based on the Mercator projection, the Sun's 'footprint' will change its shape according to the season. The program will show sunlit land in yellow and sea in blue, while night-time land will be in black with the sea in grey. These colours should give clear contrasts if used with a black and white screen.

Once the map is drawn a cursor will appear which can be moved about with a joystick while the text window will show the latitude and longitude under the cursor plus the time of Sunrise and Sunset of that place on the particular day chosen and by how many hours ahead of, or behind, GMT the local time is.

WORKING OUT THE MAP

In redrawing the map for the program the lines of latitude and longitude were made equidistant in order to make calculation easier. The area of the world included was from 67 degrees North to just over 63 degrees South which avoids the problem of deciding whether it is day, night or twilight at the Poles a certain times of the year. The modified map was divided into 160 squares across by 80 squares down, making each 2.25 degrees of longitude wide by about 1.65 degrees of latitude high. These squares were allocated to land or sea but to fill in some of the blank areas some islands were designated land although smaller than half a square.

To understand how the map is drawn by the computer you may like to enter the following one line program

```
10 GRAPHICS 3: FOR I=1 TO 4: PRINT #6; CHR$(I);:NEXT I
```

which will give you three coloured squares plus one square the same colour as the background.

We could store the map by putting into data a series of 1's and 2's according to whether we want to show land or water for that particular square but if we use Graphics 7, which gives reasonable detail, we would need to store 160 by 80, or 12,800 digits. Instead we store a number saying how many times either of the two colours is to be printed and the switch from one colour number to the other every time the colour run is completed. This switching is done by the expression R=1-R. Such a method reduces typing time and memory requirements though at the cost of some screen printing time.

With regard to showing the change between sunlight and darkness, since we still have two colours to play with including the background colour, we shift the colour number up and down two places while the map is being drawn, the position at which the shift is to take place being calculated at the beginning of each line. The formulae used together with the declination calculation at the start of the program gives times and positions within about 15 minutes of those quoted in a nautical almanac. Greater accuracy would require a much longer program which would delay the map drawing process considerably.

USES OF SUNPLOTTER

Radio Amateurs and listeners will find that having a complete picture of the sunlit and dark areas of the world helps tremendously in forecasting propagation paths on the short and medium wave bands. Others will no doubt find interesting uses for this type of information and maybe others will be able to come up with some more applications using the programming techniques given

I would like to offer my thanks to Dan whose useful suggestions were not always received at the time with the courtesy they deserved!

by Peter Scott Welch

```
MO 1 REM ******************************
EN 2 REM *         SUNPLOTTER         *
HD 3 REM *       for ATARI XL/XE      *
XT 4 REM *             by             *
YD 5 REM *      Peter Scott Welch     *
SS 6 REM * -------------------------- *
KD 7 REM * PAGE 6 MAGAZINE - ENGLAND  *
WV 8 REM ******************************
NO 9 REM
ME 100 DEG
YA 110 DIM M$(60),MON$(3),GMT$(6),C(15),D
   (15)
DM 120 REM PREPARE STRING FOR MONTH CALC
YK 130 M$="JAN31FEB28MAR31APR30MAY31JUN30
   JUL31AUG31SEP30OCT31NOV30DEC31"
IL 140 REM PREPARE ARRAY FOR CURSOR MOVES
ZF 150 RESTORE 2250
TT 160 FOR I=0 TO 15
RO 170 READ C,D
NY 180 C(I)=C
OP 190 D(I)=D
FS 200 NEXT I
TS 210 REM STORE THESE FOR LATER
LQ 220 E=1.64634146
QP 230 H=E/2
SO 240 F=66.6768292
LY 250 REM NOW GET TIME AND DATE
JC 260 ? CHR$(125):? :?
VL 270 ? "Sunplotter and Sunrise/Sunset F
   inder":? :?
GO 280 ? "ENTER YEAR":? "not before 1752"
   :INPUT YEAR
WD 290 IF YEAR<1753 OR YEAR>9999 THEN 280
TP 300 IF YEAR/4=INT(YEAR/4) AND YEAR/100
   <>INT(YEAR/100) OR YEAR/400=INT(YEAR/4
   00) THEN M$(10,10)="9":? "a leap year"
UL 310 ? :? "ENTER MONTH NAME":? "first 3
    letters":INPUT MON$
ML 320 T=0
US 330 FOR MO=1 TO 56 STEP 5
IV 340 IF MON$=M$(MO,MO+2) THEN 380
KJ 350 T=T+VAL(M$(MO+3,MO+4))
PE 360 NEXT MO
NB 370 GOTO 310
XM 380 ? :? "ENTER DAY NUMBER"
CG 390 ? "not more than [";VAL(M$(MO+3,MO
   +4));"] ":INPUT DAY
CG 400 IF DAY>VAL(M$(MO+3,MO+4)) THEN 380
UC 410 SN=T+DAY
VD 420 ? :? "ENTER TIME in GMT":? "24 hou
   r clock-4 digits":INPUT GMT$
UW 430 IF LEN(GMT$)<>4 THEN 420
LS 440 IF VAL(GMT$(3,3))>5 THEN 420
FD 450 GMT=VAL(GMT$)
NN 460 IF GMT<0 OR GMT>2400 THEN 420
OL 470 GH=INT(GMT/100)
LB 480 GM=(GMT-GH*100)/60
XI 490 G=(GH+GM-12)*15
LN 500 REM SUNS DECLINATION FOR THAT DAY
FP 510 SM=SN-3.762863
AX 520 IF SM<0 THEN SM=SM+360
RO 530 CEC=1.91574164*SIN(SM)
YQ 540 GEG=SM+CEC+278.83354
EK 550 IF GEG>360 THEN GEG=GEG-360
MA 560 SDC=0.397818675*SIN(GEG)
PR 570 DDEC=ATN(SDC/SQR(-SDC*SDC+1))
QK 580 TANDEC=SIN(DDEC)/COS(DDEC)
WW 590 GRAPHICS 7
AZ 600 POKE 16,64:POKE 53774,64:REM DISAB
   LE BREAK
VY 610 POKE 708,6:POKE 712,0:REM COLOURS
KP 620 POKE 752,1:REM GET RID OF CURSOR
ON 630 ? "Plotting sunlight and darkness
   for":? :? "  ";GMT$;" hours GMT on ";D
   AY;" ";MON$;" ";YEAR
VL 640 REM READ MAP DATA
HW 650 LAT=F
YW 660 RESTORE 1520
BB 670 READ V
YD 680 R=1-R
IS 690 FOR I=1 TO V
PM 700 Q=P
YC 710 M=PEEK(85)
TV 720 IF M<>0 THEN 840
EY 730 REM AT BEGINNING OF EACH LINE
   CALCULATE POSITION OF SUNRISE AND SET
DH 740 LON=TANDEC*SIN(LAT)/COS(LAT)
HI 750 IF LON>1 THEN RI=0:SE=160:GOTO 830
RX 760 IF LON<-1 THEN RI=160:SE=0:GOTO 83
   0
VA 770 LON=-ATN(LON/SQR(-LON*LON+1))+90
SN 780 LR=(LON-G)/2.25
OE 790 LS=(360-LON-G)/2.25
XA 800 RI=LR:SE=LS:P=0
IC 810 IF LR<0 THEN SE=LR+160:RI=LS:P=2
BE 820 IF LS>160 THEN RI=LS-160:SE=LR:P=2
VR 830 LAT=LAT-E
FN 840 IF M>=RI AND M<=SE THEN Q=2-P
AI 850 REM PRINT MAP PIXCEL/SQUARES
YR 860 ? #6;CHR$(Q+R);
GM 870 NEXT I
MJ 880 IF V=265 THEN 910
RC 890 GOTO 670
RT 900 REM CREATE NEW CURSOR AND MOVE IT
RC 910 X=X+45:Y=Y+13
NG 920 A=PEEK(106)-24
FT 930 POKE 54279,A
MN 940 PM=256*A
TD 950 POKE 559,46
VW 960 POKE 53277,3
MW 970 POKE 704,14
EW 980 FOR I=PM+512 TO PM+640
QA 990 POKE I,0
EP 1000 NEXT I
MV 1010 RESTORE 2270
DT 1020 FOR I=0 TO 30
PW 1030 READ A
DK 1040 POKE 1536+I,A
FE 1050 NEXT I
QC 1060 S=STICK(0)
XR 1070 X=X+C(S)
YS 1080 Y=Y+D(S)
UZ 1090 Y=Y+(Y<13)-(Y>92)
HN 1100 X=X+(X<45)-(X>204)
QU 1110 Z=USR(1536,X,Y)
KV 1120 REM PRINT WHEN CURSOR STOPS
            CLEAR WHEN CURSOR MOVES
YE 1130 IF S<>15 AND FLAG=0 THEN 1060
GC 1140 IF S<>15 THEN FLAG=0:? CHR$(125):
   POKE 77,0:REM ON CURSORS FIRST MOVE
    CLEAR TEXT AND DISABLE ATTRACT MODE
KJ 1150 IF FLAG=1 THEN 1060
MA 1160 FLAG=(S=15)
KB 1170 IF FLAG=0 THEN 1060
FJ 1180 POKE 656,0:? "Sunplot ";GMT$;" ho
   urs GMT on ";DAY;" ";MON$;" ";YEAR
EO 1190 LAT=INT((F-(Y-13)*E)+0.5)
EJ 1200 L=INT((178.875-(X-45)*2.25)+0.5)
XA 1210 ? "UNDER CURSOR      LONG ";ABS(L)
   ;
CH 1220 IF L<0 THEN ? "E";:GOTO 1240
WY 1230 ? "W";
WM 1240 ? "  LAT ";ABS(LAT);
AS 1250 IF LAT<0 THEN ? "S":GOTO 1270
```

```
VF 1260 ? "N"
QQ 1270 ? "local time        Sunrise & set
    GMT"
VN 1280 IF L<0 THEN ? "GMT plus ";:GOTO 1
   300
GB 1290 ? "GMT minus ";
TR 1300 ? INT(0.5+ABS(L)/15);:POKE 657,19
GJ 1310 LON=TANDEC*SIN(LAT)/COS(LAT)
NF 1320 IF LON>1 THEN ? "Sun above horizo
   n";:GOTO 1060
FV 1330 IF LON<-1 THEN ? "Sun below horiz
   on";:GOTO 1060
EH 1340 LON=-ATN(LON/SQR(-LON*LON+1))+90
PH 1350 SR=(L/15)+(LON/15)
YZ 1360 SM=SR:GOSUB 1410
RF 1370 ST=(L/15)-(LON/15)
ZZ 1380 SM=ST:GOSUB 1410
QV 1390 GOTO 1060
XU 1400 REM CONVERT FROM DECIMAL HOURS
KE 1410 IF SM<0 THEN SM=SM+24
WI 1420 IF SM>24 THEN SM=SM-24
ZK 1430 W=INT(SM)
WK 1440 M=INT((SM-INT(SM))*60+0.5)
DQ 1450 IF M>59 THEN W=W+1:M=0
KY 1460 IF W<10 THEN ? "0";
SD 1470 ? W;
HS 1480 IF M<10 THEN ? "0";
JD 1490 ? M;"      ";
AJ 1500 RETURN
DO 1510 REM MAP OF THE WORLD
IZ 1520 DATA 1,3,2,20,2,7,1,3,1,2,5,3,1,2
   ,4,7,5,5,12,4,1,4,3,62
DT 1530 DATA 2,1,3,35,1,2,1,3,1,2,6,5,8,4
   ,11,4,2,4,1,63,5
AP 1540 DATA 1,3,19,1,7,1,4,2,1,1,1,3,4,5
   ,5,9,1,12,5,1,70
XD 1550 DATA 6,23,1,9,6,3,2,2,6,4,14,1,5,
   6,2,5,1,54,1,7,8
XG 1560 DATA 6,1,1,1,23,7,5,9,2,21,6,2,4,
   1,55,3,4,11
QM 1570 DATA 4,6,20,7,5,1,1,30,6,5,54,1,1
   ,3,1
AT 1580 DATA 17,2,8,14,1,4,7,7,24,2,4,1,1
   ,3,3,52,8,2
OJ 1590 DATA 15,2,11,21,4,7,24,2,5,1,1,1,
   2,53,8,3
PU 1600 DATA 28,14,2,7,1,10,21,1,1,2,4,1,
   2,1,1,39,1,13,8,2
UV 1610 DATA 31,13,1,7,1,11,19,2,1,3,1,46
   ,1,15,6,1,6,1
YQ 1620 DATA 25,21,1,2,1,6,1,1,19,1,2,3,1
   ,62,6,1
XX 1630 DATA 33,14,1,12,3,3,22,64,1,1
QX 1640 DATA 40,15,2,9,3,3,21,64,1,1
JS 1650 DATA 41,27,1,1,25,14,2,1,1,4,3,3,
   1,5,1,28
RS 1660 DATA 43,16,1,1,2,8,26,7,1,6,4,4,2
   ,3,2,33,2,2
NO 1670 DATA 40,16,1,7,27,6,3,1,2,4,6,3,2
   ,36,3,3
JB 1680 DATA 40,5,1,16,28,5,3,1,2,2,1,3,1
   ,4,1,4,2,30,1,3
VM 1690 DATA 47,22,29,4,1,1,2,1,2,1,1,2,1
   ,10,2,29,1,1,1,1,5,2
TD 1700 DATA 41,22,20,1,8,4,6,2,2,1,1,10,
   2,29,3,2,4,1
HX 1710 DATA 43,3,1,17,30,2,2,4,5,1,1,3,1
   ,7,1,30,2,2,3,2
TM 1720 DATA 43,21,30,1,1,6,6,1,2,1,1,38,
   2,2,1,4
GU 1730 DATA 45,17,31,9,11,38,4,2
YQ 1740 DATA 48,1,1,10,2,2,31,26,1,32
XI 1750 DATA 54,1,1,10,2,2,31,26,1,32
RQ 1760 DATA 55,1,1,6,7,1,27,1,1,21,1,6,1
   ,31
HK 1770 DATA 56,1,1,5,7,1,28,22,1,6,3,29
QT 1780 DATA 56,1,1,5,36,23,1,6,1,1,5,23,
   1,1
VD 1790 DATA 58,4,6,2,27,22,1,1,2,8,5,20,
   2,1
VH 1800 DATA 36,1,22,4,8,1,26,24,1,9,5,8,
   2,9
TG 1810 DATA 41,1,21,5,2,1,7,2,22,25,1,8,
   6,6,4,6
RT 1820 DATA 67,6,4,1,26,25,2,6,8,4,5,6,6
   ,1
YU 1830 DATA 64,4,29,26,1,4,10,3,8,5,4,1
TU 1840 DATA 66,3,29,14,1,14,12,3,8,5,4,2
ZQ 1850 DATA 66,2,5,2,23,26,2,2,11,2,8,1,
   1,3,5,2
SF 1860 DATA 66,1,3,2,1,4,20,30,11,2,8,1,
   2,1,7,1
LG 1870 DATA 67,11,20,28,14,1,7,1,9,3
UY 1880 DATA 69,9,20,26,14,1,9,1,6,1,2,1
IK 1890 DATA 70,11,19,1,5,19,21,2,1,1,6,1
YP 1900 DATA 73,12,26,17,22,1,1,1,5,2
DW 1910 DATA 72,13,26,16,24,3,2,4,4,1
JZ 1920 DATA 67,13,26,10,1,4,25,2,3,4,1,2
   ,1,1
MR 1930 DATA 61,1,4,13,1,2,24,10,1,4,26,2
   ,2,3,1,2,3,3
MI 1940 DATA 63,19,21,14,27,3,1,3,1,2,1,2
   ,1,4
KP 1950 DATA 61,20,21,13,28,1,6,2,5,5,3,1
UP 1960 DATA 55,21,20,13,29,4,11,4,1,1,1,
   1
DG 1970 DATA 54,21,20,13,31,8,4,3,1,2,3,1
TD 1980 DATA 54,19,21,13,35,1,1,1,10,1,4,
   1
DI 1990 DATA 53,19,22,12,48,2
BD 2000 DATA 58,17,22,13,4,1,36,2,2,1
AG 2010 DATA 62,17,22,13,3,1,34,1,1,3,2,2
BG 2020 DATA 62,2,1,13,22,13,2,2,33,6,2,2
   ,10,1,3,1
BT 2030 DATA 48,15,22,12,2,2,32,8,1,3,13,
   1
BJ 2040 DATA 49,14,23,10,4,2,32,12
LA 2050 DATA 63,13,24,5,1,4,3,2,31,15,6,1
DF 2060 DATA 55,13,24,10,3,2,30,17
FB 2070 DATA 61,11,26,9,4,2,30,18
IP 2080 DATA 60,10,27,9,36,18
DT 2090 DATA 60,10,28,7,37,10,1,7
HU 2100 DATA 60,10,28,7,37,18
YD 2110 DATA 60,9,30,5,38,10,1,7
WZ 2120 DATA 60,8,31,4,40,4,4,8
YF 2130 DATA 60,9,31,1,42,3,6,8
GZ 2140 DATA 60,7,86,6,10,1
HL 2150 DATA 50,7,87,5,11,1
WC 2160 DATA 49,7,103,2
VH 2170 DATA 48,5,105,1
EY 2180 DATA 48,5,93,2,10,1
TY 2190 DATA 49,5,93,1,9,2
QV 2200 DATA 50,4,104,2
HR 2210 DATA 50,4,156,4,59,1
EZ 2220 DATA 96,3,157,3,3,2,152,3
PX 2230 DATA 158,4,12,1,628,1,1,1,265
NZ 2240 REM JOYSTICK MOVEMENT
KR 2250 DATA 0,0,0,0,0,0,0,0,0,0,1,1,1,-1
   ,1,0,0,0,-1,1,-1,-1,-1,0,0,0,0,1,0,-1,
   0,0
CN 2260 REM DATA FOR CURSOR
UL 2270 DATA 104,104,104,141,0,208,104,10
   4,168,162,0,189,24,6,153,0,138,232,200
   ,224,7,208,244,96
ZG 2280 REM CURSOR SHAPE
WU 2290 DATA 0,16,40,68,40,16,0
```

DISK BONUS

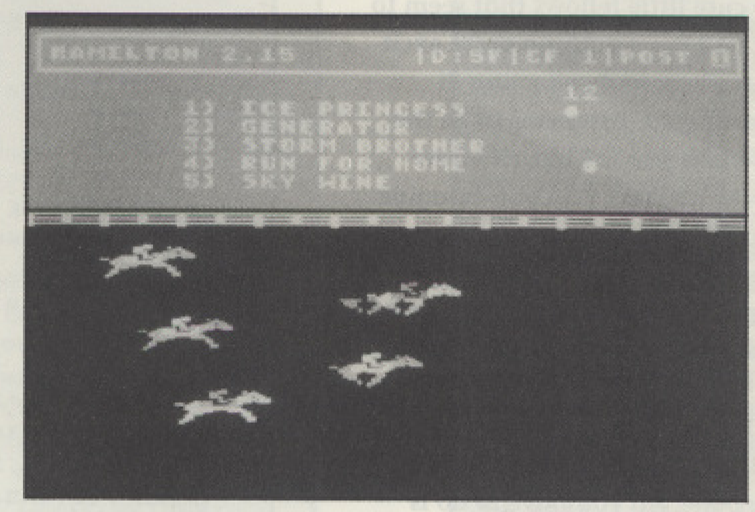
UNDER STARTERS ORDERS

The Atari Racetrack
by Barry Challis

A great horse racing program for up to four players

Under Starters Orders is a flat racing game covering 34 meetings with seven races per meeting. At the start of the game all horses have an equal chance of winning at a starting price of 5/1 but after the first meeting, the starting price reflects the horses performance in previous races. Alternatively you have the option to create form at the start of each game.

There are extensive features in the game including



- *Computer betting for 1 - 4 players*
- *Full colour animated race graphics*
- *Save game facility*
- *Multiple betting*
- *34 Flat meetings at all the major courses*
- *7 races per meeting*
- *1/2/3 form shown for current distances*
- *Joystick controlled*
- *Home betting alternative*
- *Print your own betting slips*
- *Name your own horses*
- *Photo finish*

PLAYING THE GAME

Boot up with the disk which will automatically run the program. Leave the disk in your drive when playing the game and be sure to remove any write protect tabs if you want to save games (it is best to make a copy of the full program onto another disk). When the opening options screen appears use the START key to select COMPUTER BET ON or OFF and then press the fire button. If you select COMP.BET then you will be asked how many players (up to 4). Use a joystick in port 1 to select the type of bet from Single, Double or Treble by moving the stick right or left. Press the trigger to select. Next move the joystick left or right to select the amount you wish to bet. Pressing the fire button registers your bet but if you want to bet the course maximum of 25 just leave the amount on 0 and press the trigger.

Next use the joystick up or down to choose your horse for the first race. The previous wins of each horse are shown to the right of the horses name and as you move the joystick the second and third places of the highlighted horse are shown. When all players have entered their bets, the race begins.

If you did not select COMP.BET the computer will print the runners as usual but will run up and down the field automatically showing each runners form. When you are ready to race press the fire button.

FULLY ANIMATED GRAPHICS

The race proper will show five horses from top to bottom with the names of each and the bets placed at the top of the screen. In the top right hand corner of the race screen the letters CF will show a computer form analysis and tips who should win the race. Study of this will give some indication of form and how it affects horses and will also take into account other factors unknown to the punter. Unfortunately favourites don't always win! The other label 'POST' shows the distance left to the finishing post.

SAVE GAME INSTRUCTIONS

The option of saving your current game is offered at the end of every meeting. Up to four games can be saved on the game disk and the current horse database is saved automatically when you save a game.

EDITOR INSTRUCTIONS

The program has 8 horse databases on disk of which 4 are user definable and there are 708 horses in total! It is possible to alter the details of each horse on the redefinable databases and save these changes to disk. Just press SELECT on the main title page for the Editor. There are 78 horses in each database and on selecting the Editor you will be asked which horse you wish to edit, just enter the number and type the new name. Use the arrow keys (without the CONTROL key) to choose the colour of that horse. You can change all of the horses if you wish or just a few. Return will allow you to exit the editor.

That's about it. Play Under Starters Orders with a few friends and we guarantee that it will having you leaping about and cheering as your horse crosses the line! This is one of the best multiple player games we have ever featured in Page 6 (it is also playable by 1 player) and will give you hours of play. Every once in a while a gem comes along!

Under Starters Orders is the bonus on this issue's disk and Disk subscribers will have received their copy with the magazine. The disk also contains all of the other programs from this issue ready to run and it may be purchased individually for just £2.95. Send your cheque or Postal Order to PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Overseas readers should add 50p to cover postage.

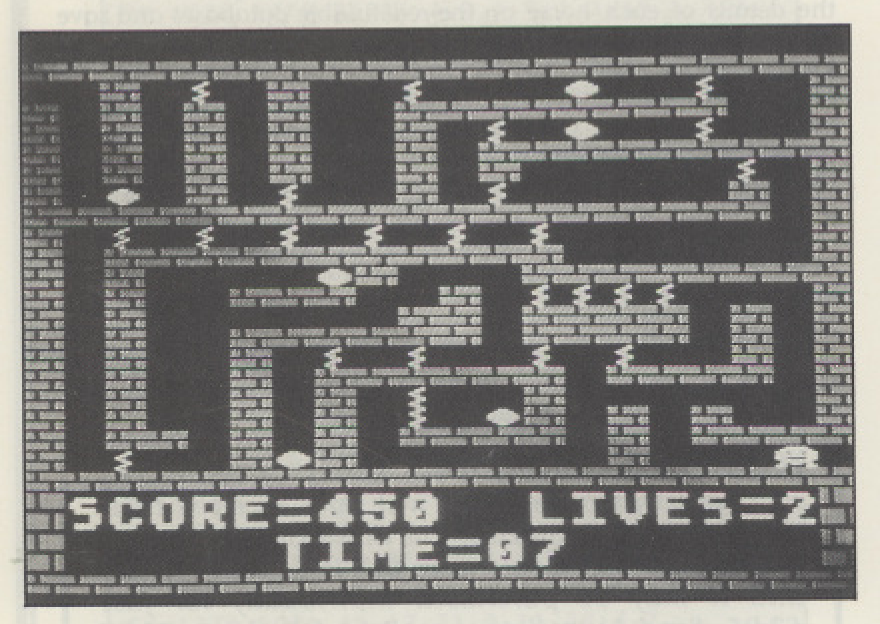
AMAZING!

Excephorous II is one of those cute little fellows that seem to live only in computer games and have nothing more exciting to do with their lives than go around collecting diamonds, nobody really knows why, it just seems to be the only worthwhile thing to do when you are buried underground in a maze that seems to have no way out. Imagine spending your whole life just collecting diamonds, must take a great deal of patience but then your life could just as easily be over in a flash, quite literally in this particular underground domain, which is full of little bolts of lightning in all the passages.

You can help Excephorous II prolong his life and succeed in his quest to collect more diamonds than any other underground fellow has ever done. All you have to do is move our little friend from the bottom right of the screen to the top left, but the further you go the harder it will be to avoid those bolts of lightning. Those lightning bolts use up the oxygen in the underground caverns so you only have a certain amount of time to find the exit and a rising warning alarm only adds to the tension. It can get rather fraught at times.

You need just a joystick and calm nerves to play AMAZING! Just type in the listing, using TYPO 3 as you go, and SAVE a copy to disk or CSAVE to tape. Run the program and away you go.

Looks easy. ZZZapp! Oh well, back to the beginning.



by Trevor Prendergast

```
WN 0 REM ******************************
FI 1 REM *          AMAZING!          *
HC 2 REM *      for ATARI XL/XE       *
XS 3 REM *             by             *
FI 4 REM *     Trevor Prendergast     *
SR 5 REM * -------------------------- *
KC 6 REM * PAGE 6 MAGAZINE - ENGLAND  *
WU 7 REM ******************************
NN 8 REM
XA 9 POKE 559,0:GOSUB 10000:POKE 559,34:G
   OTO 6000
KA 10 GRAPHICS 17:DL=PEEK(560)+PEEK(561)*
   256:POKE DL+26,135:POKE DL+27,135
VT 15 FOR X=0 TO 3:SOUND X,0,0,0:NEXT X
EM 20 POKE 710,39:POKE 711,255:POKE 20,0:
   POKE 756,CHB/256:DIA=0
LU 22 GOSUB SCREEN
EU 24 POSITION 7,21:? #6;SC;
XN 26 POSITION 18,21:? #6;LI
IW 30 IF PEEK(20)>150 THEN POKE N709,0
YA 35 IF PEEK(20)<150 THEN POKE N709,143
KY 40 SETCOLOR 0,PEEK(20),15
AV 45 IF MX=0 AND MY=1 AND DIA=DIAMAX THE
   N GOSUB 2000:GOTO 10
UT 50 JOY=PEEK(632)
GM 55 IF JOY=11 THEN GOSUB 500
ED 60 IF JOY=7 THEN GOSUB 520
LX 65 IF JOY=14 THEN GOSUB 540
NC 70 IF JOY=13 THEN GOSUB 560
SJ 80 IF TIME<9 THEN POSITION 11,22:? #6;
   "0";INT(TIME):GOTO 85
VJ 82 POSITION 11,22:? #6;INT(TIME)
MS 85 TIME=TIME-0.02
TX 100 IF TIME<=0 THEN GOTO 2500
IE 110 SOUND 2,TIME*10,10,15:SOUND 3,(TIM
   E*10)+1,10,15
PZ 400 GOTO 30
RA 500 LOCATE MX-1,MY,C
VN 502 IF C=32 OR C=43 OR (C=10 AND PEEK(
   709)=0) THEN POSITION MX-1,MY:? #6;"▟"
   ;:POSITION MX,MY:? #6;" ":MX=MX-1
GD 504 IF C=43 THEN GOSUB 800:RETURN
GH 506 IF C=10 AND PEEK(709)>0 THEN GOSUB
    900:POP :GOTO 10
TO 508 IF C=32 THEN RETURN
ZS 515 RETURN
OY 520 TRAP 530:LOCATE MX+1,MY,C
IN 522 IF C=32 OR C=43 OR (C=10 AND PEEK(
   709)=0) THEN POSITION MX+1,MY:? #6;"▟"
   ;:POSITION MX,MY:? #6;" ":MX=MX+1
GH 524 IF C=43 THEN GOSUB 800:RETURN
WH 526 IF C=10 AND PEEK(N709)>0 THEN GOSU
   B 900:POP :GOTO 10
```

```
ZH 530 RETURN
MA 540 LOCATE MX,MY-1,C
YQ 542 IF C=32 OR C=43 OR (C=10 AND PEEK(
   709)=0) THEN POSITION MX,MY-1:? #6;"█"
   ;:POSITION MX,MY:? #6;" ":MY=MY-1
GL 544 IF C=43 THEN GOSUB 800:RETURN
GP 546 IF C=10 AND PEEK(709)>0 THEN GOSUB
    900:POP :GOTO 10
ZL 550 RETURN
KW 560 LOCATE MX,MY+1,C
LG 570 IF C=32 OR C=43 OR (C=10 AND PEEK(
   709)=0) THEN POSITION MX,MY+1:? #6;"█"
   ;:POSITION MX,MY:? #6;" ":MY=MY+1
GR 574 IF C=43 THEN GOSUB 800:RETURN
GV 576 IF C=10 AND PEEK(709)>0 THEN GOSUB
    900:POP :GOTO 10
ZR 580 RETURN
CE 800 REM        GET A DIAMOND
YP 805 FOR X=7 TO 0 STEP -1
PW 810 FOR Z=X*2 TO X*5
PN 820 SOUND 1,Z,10,15:SOUND 2,Z+X,2,15:N
   EXT Z:NEXT X
SO 830 SOUND 1,0,0,0:SOUND 2,0,0,0:SC=SC+
   50:POSITION 7,21:? #6;SC
YH 840 DIA=DIA+1
ZO 850 RETURN
IB 900 REM        LOSE A LIFE
JM 905 FOR X=0 TO 255 STEP 3
GU 910 SOUND 0,X,4,15:SOUND 1,X,0,15:POKE
    712,X/4:POKE 710,X:NEXT X
EF 915 SOUND 0,0,0,0:SOUND 1,0,0,0
FP 920 LI=LI-1:IF LI=0 THEN 5000
FC 925 POSITION 18,21:? #6;LI
XN 930 POKE 712,0:POKE 710,39:RETURN
RX 999 GOTO 30
HU 1000 ? #6;"████████████████████";
HM 1005 ? #6;"            █◣+  ███";
NI 1010 ? #6;"█ █         █ ████  ██";
DE 1015 ? #6;"█ ████████  █   █  █";
NZ 1020 ? #6;"█◣ ◣ █  ◣   █   █ █";
QY 1025 ? #6;"█████ █ ████ █████+█";
SV 1030 ? #6;"█████ █ ████ █ ◣+  █";
HF 1035 ? #6;"█ ◣ ◣ █ ████+█ █████";
XU 1040 ? #6;"█ █████ ████ █     █";
TT 1045 ? #6;"█ █ ◣ █ ████ ██  █ █";
PR 1050 ? #6;"█ █ █ █   ◣   ◣  █ █";
KE 1055 ? #6;"█    █ ███ █  █████ █";
AK 1060 ? #6;"█    █    █ █ ██ ◣  █";
FI 1065 ? #6;"█   ███  █ █  █ █████";
ZI 1070 ? #6;"█   █ ◣  █   █ █ █ █◣ █";
IV 1075 ? #6;"█   █ ████  █ █ █ █ █";
US 1076 ? #6;"█   █ ◣ +█  █ █ █ █ █";
MV 1077 ? #6;"█   █ ◣  █  █ █ █ █ █";
PG 1078 ? #6;"█   █ ████  █   █ █ █";
FB 1080 ? #6;"█   █ ◣     █     ██ ";
JM 1085 ? #6;"████████████████████";
CY 1090 ? #6;"█SCORE=      LIVES= █";
MM 1095 ? #6;"█      TIME=        █";
JT 1096 ? #6;"████████████████████";
KW 1097 POSITION 18,19:? #6;"█";
IL 1098 MX=18:MY=19:TIME=15:DIAMAX=5
CK 1099 RETURN
HW 1100 ? #6;"████████████████████";
PI 1105 ? #6;"  █ ◣ █  ◣   + ◣  █";
AM 1110 ? #6;"█ █ █ █  ████████  █";
KK 1115 ? #6;"█ █ █ █  █ ◣ + ◣  █";
CE 1120 ? #6;"█ █ █ █  █ █████████";
CR 1125 ? #6;"█ █ █ █  █ █     ◣ █";
YU 1130 ? #6;"█ + █ ◣  █ ◣     █ █";
QD 1135 ? #6;"█████████████████  █";
TT 1140 ? #6;"█ ◣ ◣ ◣ ◣ ◣ ◣ ◣    █";
JY 1145 ? #6;"█ ███████████      █";
IU 1150 ? #6;"█ █     +█    █████████";
JI 1155 ? #6;"█ █   ███  █ ◣◣◣◣   █";
JF 1160 ? #6;"█ █       ██ ████ █ █";
ND 1165 ? #6;"█ █   ██████ ████ █ █";
AC 1170 ? #6;"█ █   █ ◣ ◣  ◣ ◣  █ █";
AY 1175 ? #6;"█ █   █ ██████ ████ █";
YB 1180 ? #6;"█ █   █ █ ◣  █      █";
QA 1182 ? #6;"█ █   █ █ ◣ +█ █ █  █";
QZ 1184 ? #6;"█ ██ █ █ ████ █ ████";
HE 1186 ? #6;"█ ◣   █+█      █     ";
KA 1188 ? #6;"████████████████████";
DA 1190 ? #6;"█SCORE=      LIVES= █";
MC 1192 ? #6;"█      TIME=        █";
JN 1194 ? #6;"████████████████████";
KY 1197 POSITION 18,19:? #6;"█";
JU 1198 MX=18:MY=19:TIME=15:DIAMAX=6
CM 1199 RETURN
HY 1200 ? #6;"████████████████████";
YD 1205 ? #6;"   █ ◣ ◣ ◣ + ◣ ◣ ◣  █";
GH 1210 ? #6;"█ █ ████████████████ █";
GH 1215 ? #6;"█ █ █ ◣ ◣ + ◣ ◣  █ █";
RD 1220 ? #6;"█ █ █ ███████████ █ █";
MP 1225 ? #6;"█ █ █ █ ◣ +◣ ◣ █ █ █";
BZ 1230 ? #6;"█ █ █ █ ███████ █ █ █";
HN 1235 ? #6;"█ █ █ █ █ +  █ █ █ █";
MV 1240 ? #6;"█ █ █ █ █ ██ █ █ █ █";
IL 1245 ? #6;"█ █ █ █ █  █ █ █ █ █";
LW 1250 ? #6;"█+█+█+█+█ +█+█+█+█+█";
NS 1255 ? #6;"█ █ █ █ █ ██ █ █ █ █";
HX 1260 ? #6;"█ █ █ █ █  █ █ █ █ █";
RZ 1265 ? #6;"█ █ █ █ █ +█ █ █ █ █";
NJ 1270 ? #6;"█ █ █ █ ████ █ █ █ █";
CJ 1275 ? #6;"█ █ █ █ ◣ +◣ █ █ █ █";
SV 1280 ? #6;"█ █ █ █████████ █ █ █";
GP 1282 ? #6;"█ █ █ ◣ ◣ + ◣  █ █ █";
YU 1284 ? #6;"█ █ ███████████████ █ █";
TN 1286 ? #6;"█ ◣ ◣ ◣ ◣ + ◣ ◣ ◣█  ";
KC 1288 ? #6;"████████████████████";
DC 1290 ? #6;"█SCORE=      LIVES= █";
ME 1292 ? #6;"█      TIME=        █";
JP 1294 ? #6;"████████████████████";
KW 1296 POSITION 18,19:? #6;"█";
XH 1297 MX=18:MY=19:TIME=15:DIAMAX=1
CO 1299 RETURN
IC 1300 REM
IU 1305 ? #6;"████████████████████";
NA 1310 ? #6;"   █+█       █    █";
GU 1315 ? #6;"█   █    ████+█ █ █  █";
JF 1320 ? #6;"█   █  █  ◣ ██ █ █  █";
IT 1325 ? #6;"█   ◣ █   █  █ ◣ █  █";
LO 1330 ? #6;"█   ◣█  █ ◣█  █◣ █  █";
QJ 1335 ? #6;"█   █  █◣ ◣ █  █+█  █";
WZ 1340 ? #6;"█+█   █ ◣██  █  ██  █";
HE 1345 ? #6;"██+ █  █+ █  █  ◣  █";
IH 1350 ? #6;"████  █    ◣█  ██████";
GH 1355 ? #6;"██   █  █  ◣+█ ◣ + ██";
KT 1360 ? #6;"█+   █  █ ◣█  █  █+█";
PO 1362 ? #6;"█ ██   █ ◣ █  █  █+ █";
SW 1364 ? #6;"█ █+█   █◣ █ █  ██  █";
QO 1366 ? #6;"█ █ ██   █ ██  █+█  █";
GC 1368 ? #6;"█ █   +█  ██  █  █  █";
XY 1370 ? #6;"█ █ █ ██ ◣  █+  █  █";
KG 1375 ? #6;"█ █ █ █+█◣ ██ █ █  █";
DB 1380 ? #6;"█ █ █ █    ██+█ █ █  █";
FZ 1382 ? #6;"█    █     +◣   █     ";
JO 1384 ? #6;"████████████████████";
DZ 1386 ? #6;"█SCORE=      LIVES= █";
NB 1388 ? #6;"█      TIME=        █";
JB 1390 ? #6;"████████████████████";
KI 1392 POSITION 18,19:? #6;"█";
```

AMAZING!

```
UM 1394 MX=18:MY=19:TIME=20:DIAMAX=18
CQ 1399 RETURN
IC 1400 ? #6;"████████████████████";
BG 1405 ? #6;"◣      ◣ █++◣     ◣ █";
TT 1410 ? #6;"███████ █  ███████ █";
JX 1415 ? #6;"█+█ ◣ █ █  █ ◣ █ ◣+█";
ZU 1420 ? #6;"█ █ █ █+█  █+█ █ █ █";
IJ 1425 ? #6;"█ █ █ █ █  █ █ █ █ █";
ZX 1430 ? #6;"█ █ █+█ █  █ █+█ █ █";
IM 1435 ? #6;"█ █ █ █ █  █ █ █ █ █";
HV 1440 ? #6;"█ █ █ █ █  █ █ █ █ █";
OI 1445 ? #6;"█+◣ █ ◣ █++█ █ ◣ █+█";
BT 1450 ? #6;"█ ███████  █ ███████";
SM 1455 ? #6;"█ ◣ █   █  █ ◣ █ ◣ █";
AG 1460 ? #6;"█ █+█ █ █  █ █ █+█ █";
IV 1465 ? #6;"█ █ █ █ █  █ █ █ █ █";
IE 1470 ? #6;"█ █ █ █ █  █ █ █ █ █";
BD 1475 ? #6;"█ █ █+█ █  █ █+█ █ █";
JC 1476 ? #6;"█ █ █ █ █  █ █ █ █ █";
BL 1477 ? #6;"█ █ █ █+█  █+█ █ █ █";
JK 1478 ? #6;"█ █ █ █ █  █ █ █ █ █";
QN 1480 ? #6;"█+█ ◣ █ ◣++█ █ ◣ ██ ";
JU 1485 ? #6;"████████████████████";
EB 1486 ? #6;"█SCORE=      LIVES= █";
MZ 1487 ? #6;"█      TIME=        █";
KG 1488 ? #6;"████████████████████";
KK 1492 POSITION 18,19:? #6;"█";
MR 1494 MX=18:MY=19:TIME=20:DIAMAX=21
CS 1499 RETURN
TR 1500 GRAPHICS 18:POKE 756,CHB/256:POKE
   710,143:POKE 709,255
ES 1505 A$="CONGRATULATIONS":Z=1
RE 1510 FOR S=1 TO LEN(A$):FOR X=1 TO 7
DA 1515 POSITION Z,X:? #6;A$(Z,Z)
HE 1520 POSITION Z,X-1:? #6;" "
UP 1530 FOR Q=0 TO 5:SOUND 1,X,12,15:NEXT
   Q
AD 1540 NEXT X:Z=Z+1:NEXT S
OY 1550 FOR X=1 TO 18
QU 1555 POSITION X,2:? #6;" █"
GR 1560 SOUND 1,254,14,15:SOUND 2,255,14,
   15:FOR AS=0 TO 5:NEXT AS:SOUND 1,0,0,0
   :SOUND 2,0,0,0
MD 1570 NEXT X
KF 1580 FOR X=2 TO 10
BM 1585 POSITION 18,X:? #6;" █"
CS 1586 POSITION 18,X-1:? #6;"  "
DI 1590 SOUND 1,234,14,15:SOUND 2,235,14,
   15:FOR AS=0 TO 5:NEXT AS:SOUND 1,0,0,0
   :SOUND 2,0,0,0
XS 1595 NEXT X:GOSUB 5000:GOTO 6000
HD 2000 GRAPHICS 18:POKE 708,143:FOR X=0
   TO 3:SOUND X,0,0,0:NEXT X:A$="well don
   e▸"
JH 2010 FOR X=1 TO 11
WO 2020 POSITION 4,X:? #6;A$;
QY 2030 POSITION 4,X-1:? #6;"
   ";
NK 2040 SOUND 1,X+150,10,15
OV 2050 FOR C=0 TO 15:NEXT C
LR 2060 NEXT X
KY 2070 FOR X=15 TO 0 STEP -1:SOUND 1,10,
   8,X:FOR C=0 TO 10:NEXT C:NEXT X
CX 2080 FOR X=10 TO 4 STEP -1
QJ 2090 POSITION 4,X:? #6;A$
LP 2100 POSITION 4,X+1:? #6;"           "
KO 2110 SOUND 1,15,2,15
LT 2120 FOR C=0 TO 20:NEXT C
HM 2130 NEXT X:A$="LEVEL    COMPLETED":A$(
   7,8)=STR$(LEV)
OF 2140 FOR X=1 TO LEN(A$)
NT 2150 POSITION X+1,6:? #6;A$(X,X);
GN 2152 SOUND 1,X,2,15:FOR GH=0 TO 20:NEX
   T GH:NEXT X
RZ 2160 LEV=LEV+1:SCREEN=SCREEN+100
YM 2300 SOUND 1,0,0,0:FOR GH=0 TO 500:NEX
   T GH:RETURN
YN 2500 FOR X=0 TO 254
KZ 2505 SOUND 2,X,10,15:SOUND 3,X+1,10,15
LM 2510 NEXT X
JV 2520 POSITION 4,12:? #6;"out of time":
   POKE 711,PEEK(20)
EW 2530 FOR GH=0 TO 500:POKE 711,PEEK(20)
   :NEXT GH:LI=LI-1:IF LI<1 THEN 5000
RF 2540 SOUND 2,0,0,0:SOUND 3,0,0,0:GOTO
   10
DY 2999 FOR GH=0 TO 500:NEXT GH:STOP
RP 5000 GRAPHICS 18:POSITION 5,4:? #6;"ga
   me over":FOR X=0 TO 3:SOUND X,0,0,0:NE
   XT X
OM 5005 POSITION 3,8:? #6;"YOUR SCORE=";S
   C
RN 5010 FOR X=10 TO 1 STEP -1:FOR Z=X*5 T
   O X*2 STEP -1:POKE 709,X+Z
YZ 5012 SOUND 0,Z,2,15:NEXT Z:NEXT X:SOUN
   D 0,0,0,0:POKE 709,15
XG 5020 FOR GH=0 TO 500:POKE 708,PEEK(20)
   :NEXT GH
GS 6000 GRAPHICS 18:DL=PEEK(560)+PEEK(561
   )*256:POKE 708,175:POKE 709,15:POKE 71
   0,255
IL 6005 POKE DL+14,134:POKE DL+9,134
AQ 6015 POSITION 5,2:? #6;"AMAZING!"
ZU 6020 POSITION 8,4:? #6;"by"
HC 6025 POSITION 1,6:? #6;"trevor prender
   gast"
SY 6030 POSITION 4,9:? #6;"PRESS START"
VD 6035 RESTORE 10090
WK 6040 FOR X=1 TO 64:READ D
CR 6045 SOUND 0,D,10,15:SOUND 1,D-1,10,15
LN 6050 FOR QW=1 TO 10:NEXT QW
OA 6060 SETCOLOR 0,D,15:SETCOLOR 3,PEEK(2
   0),15
NS 6070 IF PEEK(53279)=6 THEN POP :LEV=1:
   SC=0:LI=3:SCREEN=1000:GOTO 10
VG 6080 NEXT X:RESTORE 10090:GOTO 6040
GR 10000 DIM CH$(25),A$(25):CHO=57344:CH$
   ="!#*+":A$="well done▸"
EY 10010 CHB=(PEEK(106)-8)*256:FOR X=0 TO
   511:POKE CHB+X,PEEK(CHO+X):NEXT X
EU 10020 FOR X=1 TO LEN(CH$)
YN 10030 CHAD=CHB+(ASC(CH$(X))-32)*8
TQ 10040 FOR D=0 TO 7:READ A:POKE CHAD+D,
   A:NEXT D:NEXT X
JE 10050 N711=711:N709=709:LI=3:SC=0:LEV=
   1:SCREEN=1000
DV 10060 RETURN
ZP 10065 DATA 223,223,223,0,251,251,251,0
LV 10070 DATA 60,126,219,255,195,126,90,1
   95
DN 10075 DATA 8,16,32,16,8,16,32,16
NN 10080 DATA 0,24,60,126,126,60,24,0
MX 10090 DATA 150,70,150,80,150,90,150,10
   0,150,70,150,80,150,90,150,100,110,120
   ,130,140,150,170,250
FV 10100 DATA 180,250,190,250,200,250,150
   ,250,160,250,170,250,180,250,190,250,2
   00,250
UU 10110 DATA 150,250,100,250,70,200,80,2
   00,90,200,100,200,100,200,50,200,60,20
   0,70,200,80,200,90,200,100
VT 20000 GOTO 20000
```

CREATING A DATABASE

Ian Finlayson shows you how to put together several subroutines with a database program specifically for cassette users

In this article and subsequent articles I am going to change the format of the Tutorial Subroutines a bit and, instead of providing individual subroutines with detailed analysis, I am going to work up a program in stages. My aim is to write a name and address database for cassette tape users. The idea came from a reader in Brighton who wrote to me to ask if I knew of such a program. At first I thought it would be easy to advise him of one of the programs I had used in the past, but when I went searching I found that they were all disk based (as are the majority of 'serious' programs for the Atari 8-bit range).

I would have liked to fully develop this program in advance as it is easier to appear slickly knowledgable when describing and documenting a completed program, but I have not had time for that and so I will have to be strictly honest and develop the program as I go. In order to leave plenty of memory for the data itself the program will have to be straightforward and fairly short so I will write it specifically for the address book function rather than try to develop a general database program to do the job. It is always more difficult to write a program which is general and takes account of many varied uses than to write for a specific application but having said that I will ensure that the program is documented well enough for you to customise it for other applications without too much difficulty.

DATA BASE FUNCTIONS

The first thing that is needed before a start is made on actually writing a program is to decide in detail what we want it to do. For our address database I will include the following functions:

* Creating a database
* Loading a data set
* Deleting records from the database
* Printing a record or records
* Sorting the data
* Saving a data set
* Adding records to the database
* Updating (making changes to) the data
* Quit the program

For the time being I have treated each of these functions as being separate, but as we develop the program they will probably fall into groups; for example loading and saving data will probably have quite a lot in common. Also there are other possible functions that could be included, and which I may add when we have a better idea of the size of the program and whether there is enough memory. An example is the ability to tag a record or group of records to print or save as a separate set.

FLOW CHART

It is important to establish a first idea of how the different parts of the program will interact, this may well change when the program is more developed, but if there is no guideline to work to from the start it is easy to get tied up in detail and it becomes difficult to find a way through the whole program. Before starting the main part of the program there will be a need to initialise variables etc. and to provide some instructions for the first time user. Initialisation can include a title screen, and it would be nice to have a set of instructions that can be deleted from the program when they are no longer needed as this will release a bit of memory for data. Still I am getting ahead of myself - the instructions will not be written until last as we will need to know how the program works before writing instructions for others!

Having decided earlier what functions are to be included in the program it is necessary to look at the way they will interact. For this database program each function can be considered to be independent and it will be quite easy to link them through a main menu. From the main menu the program will branch out to any selected functions and when that is complete loop back to the main menu again; the exception to this is the quit function which will terminate the program.

The easiest way to visualise the interrelation of the various modules within a program is to draw them out in a flow chart. This ensures that you know where you are all the time and where conditional branches go. I have drawn up a flow chart of the prime functions of this program which can be seen in the figure.

THE PROGRAM

The actual program part of this issue's tutorial does nothing more than provide a framework for the modules to fit in. It will run and does prove the flow of the program as a whole.

Lines 10-30 - I have started by defining a whole series of line numbers, this will help to keep the program readable. It is much easier to understand 'GOSUB SORT' than GOSUB 3000 - in the latter case it is necessary to scan the listing to find what the subroutine does. You will see that the lines are spaced 1000 apart to leave plenty of space for the program lines that have to go in between.

Lines 40-50 - These lines call the initialisation and instructions subroutines. The subroutines themselves will be in a later article but I have put a little conditional branch in the instructions subroutine to try it out.

Line 999 - is a REM statement banner for the Main Menu. I will put one of these in before any major program block and will ensure they are on the line before the start of the routine. This allows all the REM statements to be deleted at a later date to release additional memory without changing the program flow (it is bad practise to GOTO or GOSUB to a REM statement). These banners make the program much more readable and help during program development, but do not affect its operation.

Lines 1000-1100 - These lines print the main menu screen - it is not an exotic or flashy screen but will serve the purpose.

Line 1110 calls the Keypress subroutine. This is a general purpose subroutine which detects a key being pressed and returns the value of the key in variable KEY. In this case we expect a number between 1 and 9 (key codes 49 and 58) and if a wrong

```
WO 1 REM ****************************
AA 2 REM *    TUTORIAL SUBROUTINE     *
VL 3 REM *        ADDRESS BOOK        *
XT 4 REM *             by             *
CN 5 REM *       Ian Finlayson        *
SS 6 REM * -------------------------- *
KD 7 REM * PAGE 6 MAGAZINE - ENGLAND  *
WV 8 REM ****************************
NO 9 REM
WW 10 QUIT=10000:TYPEIT=9000:DBLOAD=8000:
   DBSAVE=7000:RECADD=6000:RECDEL=5000:UP
   DATE=4000
JU 20 SORT=3000:CREATE=2000:MAINMENU=1000
   :KEYPRESS=12000
UI 30 INSTRUCTIONS=11000:INITIALISE=12000
   :KEYPRESS=13000
EX 40 GOSUB INITIALISE
ZA 50 GOSUB INSTRUCTIONS
MT 999 REM *** MAIN MENU ***
HL 1000 ? "K":? "            **** MAIN MENU
****":? :?
CN 1010 ? "     1- CREATE NEW DATABASE"
SN 1020 ? "     2- SORT DATABASE"
KI 1030 ? "     3- UPDATE DATABASE"
GK 1040 ? "     4- DELETE RECORDS"
TL 1050 ? "     5- ADD RECORDS"
DQ 1060 ? "     6- SAVE DATABASE"
TV 1070 ? "     7- LOAD DATABASE"
SS 1080 ? "     8- PRINT OUT"
VS 1090 ? "     9- QUIT"
VV 1100 ? :? "SELECT A NUMBER"
UH 1110 GOSUB KEYPRESS:IF KEY<49 OR KEY>5
   8 THEN ? "NUMBER MUST BE 1-9":GOTO 111
   0
FZ 1120 GOSUB (KEY-47)*1000
ZJ 1990 GOTO MAINMENU
RW 1999 REM ***CREATE D'BASE***
XU 2000 ? "CREATE DATABASE"
AE 2001 ? "PRESS A KEY TO CONTINUE":GOSUB
   KEYPRESS:RETURN
ZD 2999 REM *** SORT RECORDS***
JO 3000 ? "SORT RECORDS"
AF 3001 ? "PRESS A KEY TO CONTINUE":GOSUB
   KEYPRESS:RETURN
IS 3999 REM *** EDIT RECORD ***
WS 4000 ? "EDIT RECORDS"
AG 4001 ? "PRESS A KEY TO CONTINUE":GOSUB
   KEYPRESS:RETURN
MI 4999 REM ***DELETE RECORD***
MD 5000 ? "DELETE RECORDS"
AH 5001 ? "PRESS A KEY TO CONTINUE":GOSUB
   KEYPRESS:RETURN
RA 5999 REM ***ADD NEW RECORD***
JP 6000 ? "ADD RECORDS"
AI 6001 ? "PRESS A KEY TO CONTINUE":GOSUB
   KEYPRESS:RETURN
OP 6999 REM ***  SAVE DATA  ***
YI 7000 ? "SAVE DATA"
AJ 7001 ? "PRESS A KEY TO CONTINUE":GOSUB
   KEYPRESS:RETURN
EU 7999 REM ***  LOAD DATA  ***
RZ 8000 ? "LOAD DATA"
AK 8001 ? "PRESS A KEY TO CONTINUE":GOSUB
   KEYPRESS:RETURN
IK 8999 REM ***  PRINT OUT  ***
EH 9000 ? "PRINT OUT"
AL 9001 ? "PRESS A KEY TO CONTINUE":GOSUB
   KEYPRESS:RETURN
TF 9999 REM ***    QUIT     ***
GC 10000 ? "DO YOU REALLY WANT TO QUIT?(Y
   /N)"
LY 10010 GOSUB KEYPRESS
JK 10020 IF KEY=89 OR KEY=121 THEN ? "K":
   END
DJ 10030 RETURN
BW 10999 REM **INSTRUCTIONS ***
LJ 11000 ? :? "DO YOU NEED INSTRUCTIONS?
   (Y/N)"
MA 11010 GOSUB KEYPRESS
GS 11020 IF  NOT (KEY=89 OR KEY=121) THEN
   RETURN
BA 11030 ? "INSTRUCTIONS FOLLOW HERE"
DP 11040 RETURN
WZ 11999 REM **INITIALISTION***
VZ 12000 ? "INITIALISE"
LS 12001 ? "PRESS A KEY TO CONTINUE":GOSU
   B KEYPRESS:RETURN
DL 12002 RETURN
GG 12999 REM **  KEY PRESS  ***
LU 13000 OPEN #1,4,0,"K:":GET #1,KEY:CLOS
   E #1:? :RETURN
```

key has been pressed a prompt is printed and the program loops back to the beginning of the line for another try.

Line 1120 - This line causes the branching out into the various subroutines; when 1 is selected this line will GOSUB 2000, 2 gives GOSUB 3000, 3 gives 4000 and so on.

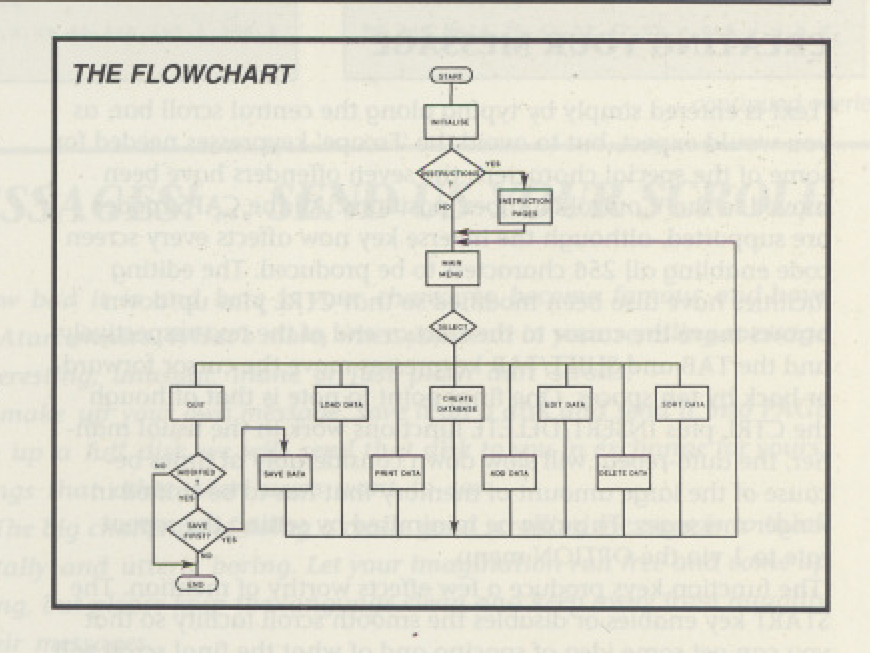
Line 1990 - When the program returns from the subroutine to line 1120 this line will loop back to the beginning of the Main Menu routine, this loop back will always occur until the Quit option is selected.

Lines 1999-9001 - These lines set up the REM banners ahead of each subroutine followed by two lines of temporary program which, in each case, prints a short statement of which subroutine will go in the space and then calls for a keypress (any key will do) to take you back to the Main Menu.

Lines 9999-10020 - Again this is a temporary subroutine. It prompts for a Yes/No answer to check you really mean to exit. Either 'Y' (89) or 'y' (121) will END the program, any other key will return to the main menu.

Lines 10030-12002 - This is the place for the Instruction and Initialisation subroutines.

Lines 12999 and 13000 - This is the subroutine which checks for key presses. As it stands it is very simple and will not deal with the most obscure situations (such as if the inverse key has been accidentally or deliberately pressed). I will put a more comprehensive subroutine here later. Keyboard input was dealt with fairly thoroughly in one of my previous articles (Issue 31).



That's all this time. If you type in the listing shown here it will run, and I will try and add piece by piece in future articles in such a way that the whole will always run. If you want more information or wish to have a say in the content of future tutorials please write to **Ian Finlayson**, at **60, Roundstone Crescent, East Preston, West Sussex, BN16 1DQ.** •

SCROLLY TEXT E

by Bryan Kennerley

Over the years the scrolling message has become something of an institution, maybe not so much on the Atari 8-bits but certainly on the Commodore 64 and Atari ST. Games and especially demos feature scrolling texts which are sometimes taken to extremes just to prove a point. At the time of writing, the record length of a scroll is 41Kb in the ST 'B.I.G. demo' which takes over two hours to read!

Until now Atari 8-bit owners have had to miss out on the delights of the infamous scrolling message but now all that will change for the Scrolly Text Editor will enable anyone to get famous with their very own message that can be passed on to thousands of other Atari users.

A few weeks ago, having nothing better to do, I fancied creating a scrolling message on my Atari but immediately hit upon the problem of how to enter the text into the computer. It turned out to be easier to write a program so the Scrolly Text Editor was born. It slowed down the creation of my message by over a week but once completed simplified the text entry no end. What's more there is now an scrolling message editor for the Atari so that anyone can create their own messages.

The Scrolly Text Editor is a machine code program that can be created by the BASIC listing shown. Just type in the listing, checking it with TYPO 3 as you go and SAVE a copy to disk. Now insert a disk with at least 40 free sectors into Drive 1 and RUN the listing. It takes about a minute and a half to create the machine code file so go and boil yourself half an egg and when you come back you will find a file called SCROLLY.OBJ on your disk. This file can be run by calling up DOS and using Option L on the DOS menu.

CREATING YOUR MESSAGE

Text is entered simply by typing along the central scroll bar, as you would expect, but to avoid the 'Escape' keypresses needed for some of the special characters, the seven offenders have been moved to the 'Control-Number' positions. All the CAPS modes are supported, although the inverse key now affects every screen code enabling all 256 characters to be produced. The editing facilities have also been modified so that CTRL plus up/down arrows move the cursor to the start or end of the text respectively and the TAB and SHIFT/TAB keypresses move the cursor forward or back by ten spaces. One final point to note is that although the CTRL plus INSERT/DELETE functions work in the usual manner, the auto-repeat will slow down considerably at times because of the large amount of memory that has to be shifted in longer messages. This can be minimised by setting the repeat rate to 1 via the OPTION menu.

The function keys produce a few effects worthy of mention. The START key enables or disables the smooth scroll facility so that you can get some idea of spacing and of what the final scroll will look like. Pressing the SELECT key switches between the two different scroll routines available. If the BIG SCROLL is enabled, any successive scroll will use Graphics 2 instead of graphics 0 and will also include a pretty nifty special effect to create a kind of shadow on the letters but because of the restrictions of this graphics mode, lowercase and inverse letters will be displayed as different coloured uppercase characters. Control characters will give unpredictable results, so if you plan to use expanded text in your scroll you should select this option to check on the desired effect before saving the message.

FURTHER OPTIONS

The OPTION key will bring up a menu of further options and also exit back to the main editing screen. Here you can choose the option you want by using the up and down arrow keys and select that option with the RETURN key as instructed on the screen. You can modify the auto-repeat on the keys i.e the number of 50ths of a second before the repeat starts and the time between each successive repeat - this is similar to the effect of memory locations 729 and 730 on the XL/XE. The boot values of Basic are 40 and 5 which I find annoyingly slow. I personally prefer 12 and 2 which speeds things up considerably and have used these as the default in this program. If the bouncing lines in the header text on the main screen make your eyes ache you can disable them from this menu and, if you like music while you work, you can even switch the tape motor and key click on or off.

LOAD AND SAVING MESSAGES

The load and save options, once selected, bring up a filename window at the bottom of the screen which can be closed again by pressing the ESCAPE key. You need only enter the 8 character name of the file and not the device name or the extender - all files are saved to Drive 1 with a .TXT extension. If the cassette motor is on when you access the disk, it will be temporarily stopped during the process. Should you just want to erase the current message in memory just select either option and type WIPEME - don't try to use that as a filename!

THE WORLD RECORD?

From the main screen you may have noticed that you have 27kb for your message, but if you load the editor without Basic, an extra 8Kb is freed giving a maximum of 35Kb. Not quite enough for the world record but, if you wanted to, you could always attempt the world record for an 8-bit machine which I have been told is 21Kb in a program for the Commodore 64.

Whatever you write about in your message, you are bound to succumb to the temptation that has plagued the demo writer throughout history - the superfluous HELLO concept. I certainly have never seen a scroll without a greetings list so if you are going to follow this age old tradition, at least mention my name (in a good context please) since nobody has ever done this before (boo-hoo!) and you can always pad it out with sarky comments in brackets (and why not?), they can make a message more entertaining. In any case, it is always wise to remember that if you enjoy writing the message, it's a safe bet that people will enjoy reading it.

Have fun!

EDITOR

```
MO 1 REM ******************************
NN 2 REM *     SCROLLY TEXT EDITOR    *
HD 3 REM *       for ATARI XL/XE      *
XT 4 REM *             by             *
TK 5 REM *      Bryan Kennerley       *
SS 6 REM * -------------------------- *
KD 7 REM * PAGE 6 MAGAZINE - ENGLAND  *
WV 8 REM ******************************
MO 9 REM
IK 10 GRAPHICS 0:POKE 82,0:POKE 752,1
GK 20 POSITION 4,1:? "PLEASE INSERT DISK
   WITH AT LEAST        40 FREE SECTORS A
   ND PRESS RETURN"
BL 30 OPEN #1,4,0,"K:"
OU 40 GET #1,D:IF D<>155 THEN 40
SX 50 ? :? "WORKING.......":RESTORE
GZ 60 CLOSE #1:OPEN #1,8,0,"D:SCROLYED.OB
   J"
BE 70 FOR X=1 TO 4917:READ D:PUT #1,D:NEX
   T X:CLOSE #1
DL 80 IF D=32 THEN ? "OPERATION SUCCESSFU
   L!!!!":GOTO 95
AD 90 ? "DATA ERROR - PLEASE CHECK"
MP 95 POKE 752,0:END
BY 99 REM
RU 100 DATA 255,255,0,32,40,51,162,16,169
   ,12,157,66,3,32,86,228,169,64,133,16,1
   41,14,210,169,0,160
ON 110 DATA 127,153,128,6,136,16,250,169,
   40,141,48,2,169,34,141,49,2,169,34,141
   ,47,2,169,132,141,196
OG 120 DATA 2,169,0,141,198,2,169,1,141,1
   29,6,141,134,6,141,152,6,141,171,6,169
   ,1,141,130,6,169
ZK 130 DATA 255,141,146,6,169,12,141,155,
   6,141,147,6,169,2,141,156,6,141,148,6,
   32,60,41,32,87,41
JF 140 DATA 32,112,41,32,137,41,32,239,41
   ,32,5,42,32,27,42,32,49,42,32,70,42,32
   ,91,42,32,115
HQ 150 DATA 42,32,137,42,32,218,46,169,0,
   133,112,169,52,133,113,32,65,40,169,7,
   160,135,162,37,32,92
ST 160 DATA 228,169,76,141,0,2,169,36,141
   ,1,2,169,192,141,14,212,173,161,6,240,
   3,76,190,32,173,164
WM 170 DATA 6,240,3,76,236,49,173,165,6,2
   40,235,76,141,49,160,7,185,10,45,217,6
   0,36,208,51,136,16
RO 180 DATA 245,169,0,141,140,6,141,141,6
   ,141,144,6,141,145,6,32,60,41,169,0,13
   3,112,169,52,133,113
IG 190 DATA 169,0,141,131,6,141,132,6,32,
   87,41,32,112,41,32,137,41,32,65,40,76,
   166,33,160,1,185
JQ 200 DATA 10,45,201,32,240,5,200,192,8,
   208,244,200,200,200,162,3,189,64,36,15
   3,10,45,136,202,16,246
AV 210 DATA 173,2,211,141,255,6,169,60,14
   1,2,211,169,0,141,14,212,162,100,160,2
   55,136,208,253,202,208,248
EM 220 DATA 162,16,169,3,157,66,3,169,0,1
   57,68,3,169,45,157,69,3,172,159,6,136,
   185,60,36,157,74
WD 230 DATA 3,160,0,32,86,228,192,1,240,3
   ,76,7,34,162,16,172,159,6,136,185,62,3
   6,157,66,3,169
YH 240 DATA 0,157,68,3,169,52,157,69,3,17
   3,159,6,201,1,240,15,173,140,6,157,72,
   3,173,141,6,157
OZ 250 DATA 73,3,76,143,33,169,255,157,72
   ,3,157,73,3,160,0,32,86,228,173,159,6,
   201,1,208,3,32
FN 260 DATA 214,33,162,16,169,12,157,66,3
   ,32,86,228,169,0,141,161,6,141,159,6,1
   60,7,153,203,44,136
TS 270 DATA 16,250,160,11,153,10,45,136,1
   6,250,173,255,6,141,2,211,169,144,141,
   242,42,169,44,141,243,42
RQ 280 DATA 169,64,141,14,212,76,166,32,1
   62,16,189,72,3,141,140,6,189,73,3,141,
   141,6,169,0,141,144
NM 290 DATA 6,141,145,6,141,131,6,169,0,1
   33,112,169,52,133,113,32,60,41,32,87,4
   1,32,112,41,32,137
SA 300 DATA 41,32,65,40,96,169,20,141,162
   ,6,169,60,141,163,6,169,96,141,0,210,1
   69,170,141,1,210,169
DC 310 DATA 224,141,246,42,169,44,141,247
   ,42,76,156,33,240,240,87,90,34,112,112
   ,112,112,66,152,34,66,192
EM 320 DATA 34,240,66,232,34,112,66,182,3
   5,82,136,35,66,222,35,112,66,16,35,66,
   56,35,66,96,35,112
AL 330 DATA 112,112,112,112,240,87,90,34,
   65,40,34,0,51,35,50,47,44,44,57,0,52,3
   7,56,52,0,37
NW 340 DATA 36,41,52,47,50,0,0,0,0,0,0,0,
```

continued overleaf

SEND US YOUR SCROLLING MESSAGES! ... SEND US YOUR SCROLL

Everybody loves to read a scrolling message no matter how bad it is and here is your chance to become famous and have your very own scrolling message read by hundreds of other Atari owners. What's more, when you send in your scrolling message we'll send you back a whole disk full of other people's interesting, unusual, inane or just plain daft scrolls!

All you need to do is use the SCROLLY TEXT EDITOR to make up your own message, save it on a disk and send it into PAGE 6. As soon as we have enough scrolling messages to make up a full disk we will send that disk to you in exchange for yours. You can then spend hours marvelling at all the crazy things that other Atari users want to say.

What do you put into a scroll? Anything you like really. The big challenge of doing a really good scrolling message is to think up enough to say without repeating yourself or getting totally and utterly boring. Let your imagination run free and come up with a better scroll than anybody else! Write about anything, but please keep the language clean and keep away from naughty things! A lot of younger Atari users will be sending in their messages.

Go to it! Send your disk (sorry we can't cope with cassettes) to THE PAGE 6 SCROLL, P.O. Box 54, Stafford, ST16 1DR. You'll probably have to wait a few weeks for us to get enough scrolls to fill a disk but as soon as we have enough, a disk will be on its way back to you.

SCROLLY TEXT

```
   0,34,121,0,34,14,43,101,110,110,101,11
   4,108,101
HR 350 DATA 121,0,33,117,103,117,115,116,
   0,17,25,24,24,0,0,0,0,0,0,0,0,0,0,0,0,
   0
DD 360 DATA 0,0,0,0,0,45,37,45,47,50,57,0
   ,53,51,37,36,26,0,0,0,0,0,0,0,0,0
YF 370 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,45,37,45,47,50,57,0
CK 380 DATA 44,37,38,52,26,0,0,0,0,0,0,0,
   0,0,0,0,0,0,0,0,0,0,0,0,0,0
OH 390 DATA 0,0,0,0,0,0,0,35,53,50,50,37,
   46,52,0,48,47,51,26,0,0,0,0,0,0,0
VS 400 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,35,33,48
AY 410 DATA 51,0,44,47,35,43,26,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0,0,0
UA 420 DATA 0,0,0,0,0,0,0,0,0,0,0,0,41,46
   ,54,37,50,51,37,0,26,0,0,0,0,0
IY 430 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0
YM 440 DATA 34,41,39,0,51,35,50,44,26,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
JC 450 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0
JE 460 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0
GT 470 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,93,
   0,0,0,0,0,0,0,0,0,0,0,0
JI 480 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0
JO 490 DATA 0,92,0,0,0,0,0,0,0,0,0,0,0,0,
   0,0,0,0,0,0,0,0,47,46,0,0
QD 500 DATA 47,38,38,0,35,52,50,44,47,46,
   0,0,47,38,38,0,136,140,136,132,16,17,1
   8,19,20,21
EP 510 DATA 22,23,24,25,16,39,232,3,100,0
   ,10,0,1,0,100,10,1,15,15,15,15,15,0,0,
   4,0
PB 520 DATA 7,11,46,84,88,84,87,73,80,69,
   77,69,32,32,72,206,130,6,16,42,169,1,1
   41,130,6,173
VG 530 DATA 129,6,208,17,173,128,6,201,2,
   208,5,238,129,6,16,20,206,128,6,16,15,
   173,128,6,201,11
VP 540 DATA 208,5,206,129,6,16,3,238,128,
   6,169,136,141,0,2,169,36,141,1,2,104,6
   4,72,152,72,169
EX 550 DATA 3,141,4,212,173,157,6,208,27,
   172,128,6,240,6,140,10,212,136,208,250
   ,160,0,185,26,36,141
UL 560 DATA 10,212,141,22,208,200,192,4,2
   08,242,173,153,6,208,19,173,131,6,48,2
   8,169,228,141,0,2,169
BM 570 DATA 36,141,1,2,104,168,104,64,169
   ,81,141,0,2,169,37,141,1,2,104,168,104
   ,64,169,97,141,0
RG 580 DATA 2,169,50,141,1,2,104,168,104,
   64,72,152,72,173,131,6,240,81,206,132,
   6,48,3,76,61,37
DT 590 DATA 238,169,6,208,3,238,170,6,169
   ,3,141,132,6,160,0,177,112,141,181,35,
   185,140,35,153,139,35
XN 600 DATA 200,192,42,208,245,230,112,20
   8,2,230,113,32,44,41,32,137,41,173,144
   ,6,205,140,6,208,22,173
OP 610 DATA 145,6,205,141,6,208,14,169,0,
   133,112,169,52,133,113,32,44,41,32,137
   ,41,173,132,6,141,4
US 620 DATA 212,169,81,141,0,2,169,37,141
   ,1,2,104,168,104,64,72,152,72,169,3,14
   1,4,212,173,157,6
BW 630 DATA 208,27,172,128,6,240,6,140,10
   ,212,136,208,250,160,0,185,26,36,141,1
   0,212,141,22,208,200,192
AI 640 DATA 4,208,242,169,76,141,0,2,169,
   36,141,1,2,104,168,104,64,173,166,6,24
   0,3,76,98,228,173
AN 650 DATA 154,6,240,6,206,154,6,76,38,3
   9,173,31,208,201,7,240,246,201,3,208,3
   ,76,247,38,174,153
VY 660 DATA 6,208,248,201,5,240,17,201,6,
   208,226,173,140,6,208,59,173,141,6,208
   ,54,76,98,228,173,171
CU 670 DATA 6,73,1,141,171,6,32,27,42,169
   ,20,141,154,6,172,152,6,153,30,208,173
   ,131,6,208,3,76
KY 680 DATA 98,228,169,0,141,131,6,141,13
   2,6,169,1,141,167,6,173,171,6,73,1,76,
   11,38,173,131,6
GE 690 DATA 208,3,76,154,38,169,0,141,167
   ,6,141,131,6,141,132,6,173,171,6,208,3
   8,169,40,141,48,2
KD 700 DATA 141,2,212,169,34,141,47,2,141
   ,3,212,173,170,6,208,7,173,169,6,201,1
   1,144,63,165,112,56
LO 710 DATA 233,14,133,112,76,70,38,173,1
   70,6,208,7,173,169,6,201,21,144,41,165
   ,112,56,233,22,133,112
RG 720 DATA 165,113,233,0,133,113,32,44,4
   1,173,145,6,201,255,208,36,165,112,24,
   109,140,6,133,112,165,113
IV 730 DATA 109,141,6,133,113,76,76,38,16
   5,112,56,237,169,6,133,112,165,113,237
   ,170,6,133,113,76,76,38
EU 740 DATA 32,65,40,32,137,41,160,0,173,
   167,6,140,167,6,201,1,240,14,172,152,6
   ,153,30,208,169,20
RG 750 DATA 141,154,6,76,98,228,173,144,6
   ,205,140,6,208,22,173,145,6,205,141,6,
   208,14,169,0,133,112
CX 760 DATA 169,52,133,113,32,44,41,32,13
   7,41,169,1,141,131,6,160,45,169,0,153,
   136,35,136,16,250,169
UJ 770 DATA 12,141,154,6,169,0,141,169,6,
   141,170,6,172,152,6,153,30,208,173,171
   ,6,208,21,169,62,141
ZH 780 DATA 48,2,141,2,212,169,50,141,47,
   2,141,3,212,169,255,141,131,6,76,98,22
   8,169,211,141,48,2
KR 790 DATA 141,2,212,169,42,141,47,2,141
   ,3,212,169,22,141,36,2,169,45,141,37,2
   ,169,1,141,153,6
LW 800 DATA 169,20,141,154,6,169,0,172,15
   2,6,153,30,208,76,98,228,173,131,6,240
   ,3,76,98,228,173,15
CB 810 DATA 210,41,4,240,8,169,255,141,14
   6,6,76,102,39,173,9,210,205,146,6,208,
   11,173,147,6,240,20
RD 820 DATA 206,147,6,76,102,39,32,105,39
   ,208,17,173,155,6,141,147,6,76,102,39,
   206,140,6,208,3,32
QZ 830 DATA 105,39,76,98,228,173,9,210,14
   1,146,6,160,129,217,157,40,240,27,136,
   192,255,208,246,160,12,217
VZ 840 DATA 31,41,240,12,136,16,248,169,2
   55,141,146,6,141,147,6,96,76,23,40,152
   ,192,128,240,4,192,129
FM 850 DATA 208,4,169,0,240,36,192,97,144
   ,9,192,123,176,5,56,233,64,208,23,174,
   133,6,240,18,192,33
ZQ 860 DATA 144,14,192,59,170,10,24,105,3
   2,224,2,240,3,24,105,32,174,134,6,208,
   2,9,128,174,142,6
PX 870 DATA 208,5,174,143,6,240,59,160,0,
   145,112,173,156,6,141,148,6,152,174,15
   2,6,157,38,208,173,144
XH 880 DATA 6,205,140,6,208,25,173,145,6,
   205,141,6,208,17,238,140,6,208,3,238,1
   41,6,32,87,41,32
KP 890 DATA 60,41,32,112,41,230,112,208,2
   ,230,113,32,44,41,32,137,41,32,65,40,1
   69,0,96,152,10,168
TN 900 DATA 185,210,47,133,126,185,211,47
   ,133,127,108,126,0,169,0,174,152,6,157
   ,30,208,173,156,6,141,148
NB 910 DATA 6,169,0,96,169,255,141,147,6,
   141,148,6,96,165,112,56,233,19,133,114
   ,165,113,233,0,133,115
IL 920 DATA 160,40,177,114,153,140,35,136
   ,16,248,173,145,6,208,20,169,18,205,14
   4,6,144,13,56,237,144,6
CX 930 DATA 168,169,0,153,140,35,136,16,2
   50,173,140,6,56,237,144,6,141,150,6,17
   3,141,6,237,145,6,208
JW 940 DATA 25,173,150,6,201,21,176,18,16
   9,20,56,237,150,6,170,168,39,169,0,153
   ,140,35,136,202,16,249
BZ 950 DATA 96,33,95,94,90,88,93,91,115,1
   12,114,7,6,32,14,34,38,50,31,30,26,24,
   29,27,51,53
IM 960 DATA 48,66,2,54,15,55,102,117,63,2
   1,18,58,42,56,61,57,13,1,5,0,37,35,0,1
   0,47,40
IS 970 DATA 62,45,11,16,46,22,43,23,96,70
   ,98,71,70,160,191,149,146,186,170,184,
   189,185,141,129,133,128
UM 980 DATA 165,163,136,138,175,168,190,1
   73,139,144,174,150,171,151,28,152,157,
   155,179,162,127,85,82,122,106,120
HO 990 DATA 125,121,77,65,69,64,101,99,72
   ,74,111,104,126,109,75,80,110,86,107,8
   7,130,79,158,159,154,97
HE 1000 DATA 161,142,143,134,135,39,60,12
   4,108,44,108,52,180,183,165,112,56,233
   ,0,141,144,6,165,113,233,52
XW 1010 DATA 141,145,6,96,169,0,56,237,14
   0,6,168,165,106,237,141,6,170,152,56,2
   33,0,141,142,6,138,233
OU 1020 DATA 52,141,143,6,96,173,140,6,13
   3,126,173,141,6,133,127,32,167,41,160,
   4,185,135,6,153,175,34
AW 1030 DATA 136,16,247,96,173,142,6,133,
   126,173,143,6,133,127,32,167,41,160,4,
   185,135,6,153,215,34,136
DH 1040 DATA 16,247,96,173,144,6,24,105,1
   ,133,126,173,145,6,105,0,133,127,32,16
   7,41,160,4,185,135,6
HR 1050 DATA 153,255,34,136,16,247,96,169
   ,0,160,4,153,135,6,136,16,250,168,170,
   165,127,217,41,36,144,30
RM 1060 DATA 208,7,165,126,217,40,36,144,
   21,254,135,6,165,126,56,249,40,36,133,
   126,165,127,249,41,36,133
RT 1070 DATA 127,76,179,41,200,200,232,22
   4,5,208,212,160,4,185,135,6,170,189,30
   ,36,153,135,6,136,16,243
PT 1080 DATA 96,173,133,6,10,10,24,105,3,
   168,162,3,185,6,36,157,39,35,136,202,1
   6,246,96,173,134,6
PM 1090 DATA 10,10,24,105,3,168,162,3,185
   ,18,36,157,79,35,136,202,16,246,96,173
   ,171,6,10,10,24,105
FV 1100 DATA 3,168,162,3,185,18,36,157,11
   9,35,136,202,16,246,96,173,155,6,141,1
   50,6,32,160,42,160,2
MR 1110 DATA 185,135,6,153,107,43,136,16,
   247,96,173,156,6,141,150,6,32,160,42,1
   60,2,185,135,6,153,147
OF 1120 DATA 43,136,16,247,96,173,152,6,7
   3,1,10,10,24,105,3,168,162,3,185,18,36
   ,157,107,43,136,202
AV 1130 DATA 16,246,96,173,157,6,10,10,24
   ,105,3,168,162,3,185,18,36,157,227,43,
   136,202,16,246,96,173
RU 1140 DATA 2,211,41,8,74,24,105,3,168,1
   62,3,185,18,36,157,11,44,136,202,16,24
   6,96,169,0,141,135
KO 1150 DATA 6,141,136,6,141,137,6,162,0,
   173,150,6,56,253,50,36,144,8,141,150,6
   ,254,135,6,208,239
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SO 1160 DATA 232,224,3,208,234,160,2,185,
   135,6,170,189,30,36,153,135,6,136,16,2
   43,96,240,240,87,90,34
VU 1170 DATA 112,112,66,0,43,2,112,66,80,
   43,2,2,2,2,112,66,24,44,2,112,66,104,4
   4,112,112,66
PK 1180 DATA 144,44,112,66,144,44,112,240
   ,87,90,34,65,211,42,0,0,0,0,0,0,0,0,0,
   0,0,0
EF 1190 DATA 0,175,176,180,169,175,174,17
   9,128,173,165,174,181,0,0,0,0,0,0,0,0,
   0,0,0,0,0
HY 1200 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,13,13,13,13,13,13,13,13,13,13,13
WN 1210 DATA 13,0,0,0,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,50
TK 1220 DATA 37,48,37,33,52,0,36,37,44,33
   ,57,0,0,0,0,26,0,0,0,0,0,0,0,0,0,0
IW 1230 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,50
   ,37,48,37,33,52,0,50,33,52,37,0,0
CT 1240 DATA 0,0,0,26,0,0,0,0,0,0,0,0,0,0
   ,0,0,0,0,0,0,0,0,0,0,0,0
UW 1250 DATA 0,43,37,57,0,35,44,41,35,43,
   0,0,0,0,0,0,0,26,0,0,0,0,0,0,0,0
LA 1260 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,50,33,51,52,37,50,0,50,47,53,52
ZN 1270 DATA 41,46,37,0,0,26,0,0,0,0,0,0,
   0,0,0,0,0,0,0,0,0,0,0,0,0,0
XG 1280 DATA 0,0,0,35,33,51,51,37,52,52,3
   7,0,45,47,52,47,50,0,0,26,0,0,0,0,0,0
MV 1290 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,0,0,44,47,33,36,0,52,37,56,52
PV 1300 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,0,0,0,0,0,0,0,0,0,0,0
JJ 1310 DATA 0,0,0,0,0,51,33,54,37,0,52,3
   7,56,52,0,0,0,0,0,0,0,0,0,0,0,0
FH 1320 DATA 0,0,0,0,0,0,0,0,0,0,53,48,0,
   6,0,36,47,55,46,0,33,50,50,47,55,0
PL 1330 DATA 52,47,0,45,47,54,37,12,50,37
   ,52,53,50,46,0,52,47,0,51,37,44,37,35,
   52,0,0
QH 1340 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,0,0,0,0,0,0,0,0,0,0,0
ND 1350 DATA 0,0,0,0,0,0,0,0,0,0,0,0,0,0,
   0,0,0,0,0,0,0,166,169,172,165,174
WG 1360 DATA 161,173,165,154,0,0,0,0,0,0,
   0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
HI 1370 DATA 0,0,0,0,0,0,0,0,41,15,47,0,3
   7,50,50,47,50,0,13,0,48,44,37,33,51,37
EO 1380 DATA 0,50,37,52,50,57,0,0,0,0,0,0
   ,0,0,68,58,0,0,0,0,0,0,0,0,0,0
XT 1390 DATA 0,0,173,161,6,240,3,76,98,22
   0,169,192,141,14,212,173,154,6,240,6,2
   06,154,6,76,176,45
ZI 1400 DATA 173,162,6,240,13,206,162,6,2
   40,3,76,176,45,169,0,141,1,210,173,163
   ,6,240,18,206,163,6
JA 1410 DATA 240,3,76,179,45,169,144,141,
   246,42,169,44,141,247,42,173,159,6,208
   ,87,173,31,208,201,7,240
BH 1420 DATA 88,201,3,208,73,173,131,6,48
   ,7,162,40,160,34,76,119,45,162,62,160,
   50,142,48,2,142,2
HU 1430 DATA 212,140,49,2,140,3,212,169,1
   35,141,36,2,169,37,141,37,2,169,0,141,
   153,6,169,20,141,154
UO 1440 DATA 6,173,155,6,141,147,6,173,15
   6,6,141,148,6,169,255,141,146,6,169,0,
   172,152,6,153,30,208
IP 1450 DATA 76,98,228,173,15,210,41,4,24
   0,8,169,255,141,146,6,76,98,228,173,9,
   210,205,146,6,208,11
HK 1460 DATA 173,147,6,240,22,206,147,6,7
   6,98,228,32,240,45,201,0,208,17,173,15
   5,6,141,147,6,76,98
PP 1470 DATA 228,206,148,6,208,3,32,240,4
   5,76,98,228,173,159,6,240,3,76,42,47,1
   73,9,210,141,146,6
RZ 1480 DATA 201,14,240,14,201,15,240,29,
   201,12,240,61,169,255,141,147,6,96,32,
   218,46,206,158,6,16,5
OS 1490 DATA 169,6,141,158,6,32,218,46,76
   ,56,46,32,218,46,238,158,6,173,158,6,2
   01,7,208,5,169,0
VT 1500 DATA 141,158,6,32,218,46,173,156,
   6,141,148,6,169,0,172,152,6,153,30,208
   ,96,173,158,6,10,168
MP 1510 DATA 185,89,46,133,126,185,90,46,
   133,127,108,126,0,103,46,124,46,145,46
   ,159,46,173,46,196,46,207
JZ 1520 DATA 46,238,155,6,173,155,6,201,4
   1,208,5,169,10,141,155,6,32,49,42,76,5
   6,46,238,156,6,173
IS 1530 DATA 156,6,201,11,208,5,169,1,141
   ,156,6,32,70,42,76,56,46,173,152,6,73,
   1,141,152,6,32
HP 1540 DATA 91,42,76,56,46,173,157,6,73,
   1,141,157,6,32,115,42,76,56,46,173,2,2
   11,73,8,141,2
GL 1550 DATA 211,32,137,42,169,255,141,14
   7,6,173,156,6,141,148,6,96,169,1,141,1
   59,6,32,6,47,76,56
VJ 1560 DATA 46,169,2,141,159,6,32,6,47,7
   6,56,46,173,158,6,10,10,10,141,158,6,1
   0,10,24,109,158
TF 1570 DATA 6,105,9,105,80,133,126,169,4
   3,105,0,133,127,172,158,6,105,53,36,16
   8,177,126,73,128,145,126
CI 1580 DATA 136,16,247,96,169,104,141,24
   2,42,169,44,141,243,42,169,0,141,160,6
   ,160,7,169,0,153,203,44
TE 1590 DATA 169,32,153,10,45,136,16,243,
   169,128,141,203,44,96,173,9,210,141,14
   6,6,160,50,217,157,40,240
LG 1600 DATA 24,136,16,248,201,52,240,75,
   201,28,240,97,201,12,240,115,169,255,1
   41,146,6,141,147,6,96,192
AM 1610 DATA 16,144,251,192,27,144,4,192,
   33,144,243,152,172,160,6,153,203,44,24
   ,105,32,153,10,45,192,7
VH 1620 DATA 240,4,238,160,6,200,185,203,
   44,9,128,153,203,44,169,0,172,152,6,15
   3,30,208,173,156,6,141
GK 1630 DATA 148,6,169,0,96,172,160,6,240
   ,192,169,0,153,203,44,153,10,45,136,15
   3,203,44,153,10,45,140
RY 1640 DATA 160,6,76,112,47,169,144,141,
   242,42,169,44,141,243,42,169,0,172,152
   ,6,153,30,208,141,159,6
HV 1650 DATA 96,169,1,141,161,6,169,0,172
   ,152,6,153,30,208,172,160,6,185,203,44
   ,41,127,153,203,44,96
SV 1660 DATA 236,47,8,48,35,48,70,48,109,
   48,123,48,146,48,157,48,168,48,221,48,
   5,49,87,49,120,49
ZK 1670 DATA 169,0,133,112,169,52,133,113
   ,32,44,41,32,65,40,32,137,41,169,0,174
   ,152,6,157,30,208,76
US 1680 DATA 56,40,169,0,24,109,140,6,133
   ,112,169,52,109,141,6,133,113,32,44,41
   ,32,65,40,32,137,41
UO 1690 DATA 76,253,47,173,144,6,208,5,17
   3,145,6,240,216,165,112,56,233,1,133,1
   12,165,113,233,0,133,113
YF 1700 DATA 32,44,41,32,65,40,32,137,41,
   76,39,40,173,144,6,205,140,6,208,8,173
   ,145,6,205,141,6
DE 1710 DATA 240,175,230,112,208,2,230,11
   3,238,144,6,208,3,238,145,6,32,65,40,3
   2,137,41,76,39,40,173
OJ 1720 DATA 134,6,73,1,141,134,6,32,5,42
   ,76,253,47,173,133,6,73,1,141,133,6,20
   1,3,208,5,169
WP 1730 DATA 1,141,133,6,32,239,41,76,253
   ,47,169,0,141,133,6,32,239,41,76,253,4
   7,169,2,141,133,6
OO 1740 DATA 32,239,41,76,253,47,173,140,
   6,56,237,144,6,141,150,6,173,141,6,237
   ,145,6,208,10,173,150
OL 1750 DATA 6,201,10,176,3,76,8,48,165,1
   12,24,105,10,133,112,165,113,105,0,133
   ,113,32,44,41,32,65
ED 1760 DATA 40,32,137,41,76,39,40,173,14
   4,6,201,10,176,8,173,145,6,208,3,76,23
   6,47,165,112,56,233
XN 1770 DATA 10,133,112,165,113,233,0,133
   ,113,32,44,41,32,65,40,32,137,41,76,39
   ,40,173,144,6,208,5
OO 1780 DATA 173,145,6,240,102,173,144,6,
   205,140,6,208,34,173,145,6,205,141,6,2
   08,26,173,140,6,56,233
HL 1790 DATA 1,141,140,6,173,141,6,233,0,
   141,141,6,32,60,41,32,87,41,32,112,41,
   165,112,56,233,1
IS 1800 DATA 133,112,165,113,233,0,133,11
   3,32,44,41,160,0,152,145,112,32,65,40,
   32,137,41,76,39,40,173
NS 1810 DATA 144,6,205,140,6,208,8,173,14
   5,6,205,141,6,240,14,169,1,141,165,6,1
   41,166,6,76,39,40
SE 1820 DATA 76,253,47,76,56,40,173,142,6
   ,208,5,173,143,6,240,243,169,1,141,164
   ,6,141,166,6,76,39
NY 1830 DATA 40,169,0,24,109,140,6,141,16
   7,6,169,52,109,141,6,141,168,6,165,112
   ,133,126,165,113,133,127
DW 1840 DATA 162,0,160,1,177,126,129,126,
   165,126,205,167,6,208,7,165,127,205,16
   8,6,240,8,230,126,208,234
ZB 1850 DATA 230,127,208,230,169,0,129,12
   6,206,140,6,173,140,6,201,255,208,3,20
   6,141,6,32,60,41,32,65
QY 1860 DATA 40,32,87,41,32,112,41,169,0,
   141,165,6,141,166,6,76,166,32,169,0,24
   ,109,140,6,133,126
HY 1870 DATA 169,52,109,141,6,133,127,160
   ,1,162,0,161,126,145,126,165,126,197,1
   12,208,6,165,127,197,113,240
LZ 1880 DATA 12,198,126,165,126,201,255,2
   08,232,198,127,208,228,169,0,129,112,2
   38,140,6,208,3,238,141,6,32
UC 1890 DATA 60,41,32,65,40,32,87,41,32,1
   12,41,169,0,141,164,6,141,166,6,76,166
   ,32,240,240,87,90
ED 1900 DATA 34,112,112,112,112,112,112,1
   12,240,215,136,35,87,136,35,112,112,11
   2,112,112,112,112,112,112,240,87
TE 1910 DATA 90,34,65,40,34,72,169,35,141
   ,10,212,141,0,212,173,132,6,141,4,212,
   169,26,141,22,208,169
UO 1920 DATA 74,141,23,208,169,106,141,24
   ,208,169,138,141,25,208,169,144,141,0,
   2,169,50,141,1,2,104,64
IK 1930 DATA 72,138,72,152,72,169,6,141,1
   0,212,141,1,212,141,22,208,141,23,208,
   141,24,208,141,25,208,162
ZJ 1940 DATA 8,172,132,6,141,10,212,234,2
   34,234,141,10,212,234,234,234,200,140,
   4,212,202,208,237,206,132,6
SQ 1950 DATA 16,73,169,7,141,132,6,160,0,
   177,112,141,161,35,185,137,35,153,136,
   35,200,192,25,208,245,230
ZI 1960 DATA 112,208,2,230,113,238,169,6,
   208,3,238,170,6,32,44,41,32,137,41,173
   ,144,6,205,140,6,208
IR 1970 DATA 22,173,145,6,205,141,6,208,1
   4,169,0,133,112,169,52,133,113,32,44,4
   1,32,137,41,169,2,141
VY 1980 DATA 1,212,169,132,141,22,208,169
   ,81,141,0,2,169,37,141,1,2,104,160,104
   ,170,104,64,226,2,227,2,0,32
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Mark Hutchinson's Random Notes on the Atari

Sometime ago I enquired in this column about the use that people put their ATARI's to. It was only a general question and I did not really expect a lot of response. How wrong could I be about our dedicated band of PAGE 6 readers? Many of the uses to which Atari owners put their machines are interesting but most people seem to think that they are the only ones interested in using their Atari in a particular way. They are probably wrong, there is someone, somewhere in the Atari world who is also interested. Here are just a few samples of the letters that gave my postman his hernia, maybe we could get a few people together?.

The Ways you use your Atari ... Submitting programs ... Lots of Letters

A MYRIAD USES

Are you retired? Mr Arnold Beecroft of 91b Dowell Close, Taunton, Somerset, TA2 6AU would like to set up a group for retired or elderly people. He would be quite surprised at the number of letters I get from people in their mid seventies! I think this is an excellent idea and I wholeheartedly encourage him. Why not write to him and see what can be accomplished for 14p plus an SAE! Arthur Morris of Romford (who just happens to be retired himself) was so pleased with William Benbow's article on producing a book that he has now produced his own book and saved a few hundred pounds.

My thanks to Nigel Hollyman for the thirst quencher, and apologies for the wait! Jack Taylor of Cumbria has written a program to help him with stocks and shares and he informs me that he also uses it for football pools, with 'moderate success'. He also uses a football analysis program which, he states modestly, has not made him more than a few hundred pounds! Any offers for the program?

I bet you thought that preachers had an easy time, didn't you? Just a few sermons on Sunday and a few visits here and there, right? Wrong! John Jarvis wrote to me about his use of the computer and it is quite extensive. If there are any other members of the cloth who might be interested in a utility program that John wrote to help him with his duties then you can contact him at 205, Great Hivings, Chesham, Bucks, HP5 2LQ.

All the way from Italy, on what looks like real hand made paper (can it be true?), comes a letter from Paul and Lucia Clark. They run a hotel and were not too impressed by Mini Office 2. Like many other people who have written over the past few months, they would like to see a good database that works first time, but preferably one that can be tailored to fit most needs. If we had someone to start this program then it could become a series of updates each issue.

WRITING PROGRAMS FOR SUBMISSION

This brings me to the issue of programs submitted by readers. OK, you have a great program that works for you, fine. But will it be useful for others, as it stands? Does it need tidied up to cut down on memory usage? What about REM's? If someone wants to use it then they may also want to amend it. Where most programs fall down is in the documentation. I know the old adage, and we all do it, 'When all else fails, read the manual' however, when all else fails the manual needs to be there. Try to send your program as a LISTed file as well as an ordinary SAVE. Also, use single density, DOS 2.0 or 2.5 format not DOS 3.0.

LETTERS AT LAST!

I have had an amazing response to this column since the change of format, and I have to apologise here and now to those of you who may be waiting a reply. I really do have a backlog of mail to catch up on. Who said, "Work expands to fill the available time."? It is true. I seem to have even less time now, however those that included an SAE will get their reply just as soon as I can get it out.

Nice to hear from Paul Rixon again with (after how many years?) an answer to the 'Coons Patch' question asked so long ago in this column. It is a technique of 3-D surface representation pioneered by S.A. Coons. We finally get there in the ends, folks! He also told me of his disappointment in the, so called, ATARI Games Centres. Anyone else find this? (Lots of other letters saying the same thing. Ed.)

Paul, along with a lot of other readers, has complained about the lack of 8-bit software. Probably the best thing would be to start some sort of petition at the next Atari Show, signed by all who want new 8-bit stuff on the market. At the end of the show, copies could be given or sent to as many software producers as possible. If they see the demand they might well try to produce more software. The alternative is to get your hands on older software. I know that many of you have had your ATARI's for years, but what about the new owners of two to three years? How many of them have played 'RasterBlaster', to my mind the best pinball game ever for the 8-bit? Crypts of terror? Wizard of Wor? Astrochase? I could go on and on. Why can't these programs be brought out again on budget labels? These games were all available in the UK and were excellent for their time and most of them still stand up well today. There are many more that appeared only in the USA and have not been seen for some years, including a game and a utility for the ANTIC mode 4 and 5 screens - something seldom fully used over here.

I believe the future of 8 bit software is in your hands, starting with the next show (I write this in February). I know users will read and think hard about this suggestion, but will any of the software houses or vendors take the chance with older, and in my humble opinion sometimes much better, software? Time will tell.

RAMBLING ON ...

Next issue I would like to ramble on about moving from an 8-bit to a 16-bit system and how traumatic it can be for some of us (if something else does not grab my attention beforehand!). If any of you have bought an ST and immediately got rid of it, please let me know why. I have one or two comments to write at the moment and I am sure that you can guess that at least one will be levelled at ATARI UK themselves. I will really try not to be too vitriolic however!

Don't forget to write about anything interesting in the Atari world to **Mark Hutchinson, 1, Hollymount, Erinvale, Finaghy, Belfast BT10 0GL**

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TURBO BASIC

A TUTORIAL SERIES BY GORDON CAMERON

2. GOING ON TO PROCEDURES

Did you spot the deliberate mistakes in the last article? I cunningly neglected to put in the line, '45 GOTO 10', in the Atari Basic program on Page 30, column 2, doing the language an injustice it didn't deserve! The eagle-eyed amongst you will also notice that I broke the rule stated in bold type in the text - I should NOT have the word 'THEN' after the IF statement on line 30, in the DO-LOOP example on Page 31, column 2. Also, a line, '65 Y=X*X', would certainly enhance the program. If you spotted these little 'errs', full marks. If not, pay a bit more attention this time! I'm very sorry, won't let it happen again!

Last time, I tried to cover the language in general, as well as trying to introduce the structured commands available. I'll try to continue in this last vein this time, by talking about another structured idea - that of the procedure. Procedures are supported to a certain extent in Turbo Basic, and can help improve readability and understandability, as well as making sizeable programs easier to write.

There are many times when it is tempting to write the same piece of code many times in the same program. This is wasteful of space, and confuses your program. In such a case, you could write the bit of code which is used repeatedly as a **PROCEDURE**. Procedures can be used to do specific TASKS, and bearing this in mind, programming becomes simpler. Normally, when you write a program, you are probably tempted to write the whole thing at once - I know, as this is what I used to do! It is simpler, however, to break a problem (which your program will eventually solve) down into a set of smaller tasks, which in turn can be broken down, and so on. For example, when writing an art package, it would be easier to sit down and write separate procedures to, for example, Draw a line, Fill an Area, Plot a Point, Detect a movement, Load a Picture etc., rather than attempt to write the whole thing from scratch. This approach means that, at each step, you concentrate on that task ONLY, and work on it until it works. You don't worry about how it'll interact with the rest of the program, get the modules to work individually, and they'll hopefully work when put together.

PROCEDURES IN TURBO-BASIC

The above examples are all very well, but what does it actually mean in practice? You have probably written tasks or Procedures of your own, without knowing it. If you've ever used subroutines in Atari Basic, then these are very similar indeed. You write a subroutine which does something, and your program uses GOSUB to call this subroutine. At the end of the subroutine, marked by 'RETURN', the main program carries on where it left off. Instead of GOSUB, you use the following syntax to use a procedure in Turbo Basic

```
110 PROC <procedure name>
120  ---------------------
130  - 'Body' of procedure -
140  ---------------------
150 ENDPROC
```

The body of the procedure is the program instructions. These lines are automatically indented. To call the procedure, you use it's name, and NOT its line number i.e.

```
EXEC <procedure name>
```

When the procedure is finished, and your computer gets to the line **ENDPROC**, the program will then continue running from the place where **EXEC** called the procedure.

When programming, you may have a commonly used bit of code which, say, clears the screen and this gets called whenever your program *needs* to clear the screen. You can implement this in Atari Basic with the subroutine at line 9000, for example, then, 'GOSUB 9000' will clear the screen. Alternatively, in Turbo Basic, you could write a procedure. The main differences are

1. Procedures have a name, and you call them by that name, and NOT by a line number (e.g. 'GOSUB 9000' becomes 'EXEC CLEAR')
2. The code in your procedure is automatically indented, so you know what code is done by that procedure. In subroutines, it is often difficult to know what refers to what.

I'd better give you some concrete examples. The following procedure, and corresponding subroutine in the old basic, will draw a border on the Gr. 0 screen :

TURBO-BASIC (with procedures)

```
130 PROC BORDER
140   POS. 0, 1:PRINT " <38 *'s>"
150   FOR L=2 TO 19
160     POS. 1, L : PRINT "*"
170     POS. 38, L: PRINT "*"
180   NEXT L
190   POS. 0, 20:PRINT " <38 *'s>"
200 ENDPROC
```

ATARI-BASIC (subroutine)

```
130 REM Atari Basic Border
140 POS. 0, 1:? "<38 *'s>"
150 FOR L=2 TO 19
160 POS. 1, L :?"*"
170 POS. 38, L:?"*"
180 NEXT L
190 POS. 0, 20:? "<38 *'s>"
200 RETURN
```

You could call it by having lines like the following :-

TURBO-BASIC Procedure Call

```
400 EXEC BORDER
430 STOP
```

ATARI-BASIC subroutine

```
400 GOSUB 130
430 STOP
```

There is not a lot of difference in the above examples but you

can begin to see the advantages that the structuring and indenting make in Turbo-Basic. I am sure you will agree that it is much easier to follow and read the TB program. The fact that the procedure is called by name, and not line number, also makes the language more 'English-like'.

To make your programs even more readable, I recommend putting a couple of rem minus lines before and after every procedure (remember, type 2 minuses on a line to get this effect.) Listings 1 and 2 demonstrate this quite well, and the comment lines have the effect of 'separating out' the individual parts of the program.

Note that, in Turbo Basic, you are not allowed to let the program pass over a procedure definition, an error will occur just as in Atari Basic if you let your program run right through a subroutine without calling it . In Turbo Basic you need to put your main program at the beginning, with the procedures listed later on and you must have a STOP before the start of your procedures. Unless, that is, you make use of .....

THE GO# COMMAND

You can have the procedures first, with the main program at the the end. To do this, many programmers use the GO# command at the start of their program. This is a Turbo Basic command which, like GOTO, jumps to a bit of code. Aaargghh, I hear you say - messy jumps. GO# is better however, as it goes to a **LABEL**, and NOT a line number. That way, if you renumber a program, you don't affect where the program jumps to. So, if you HAVE to jump somewhere, use GO#. For the destination of one of these jumps, you need to have a line on its own, with the label name, preceded by a # sign . For example

```
10 GO# MAIN
 ------
 ------
9000 # MAIN
9010 REM MAIN PROGRAM STARTS HERE
```

If you use this to skip past your procedures, you have the following structure :

Goto the Main Program
Procedure 1
Procedure 2
. . . . .
Procedure n
Main Program

with the procedures that your program uses listed before the main program. The first procedure is commonly a setup one. Listings 1 and 2 show how the GO# command skips past the procedures to get to the main code. Remember, if you start running out of lines, you can always use **RENUM**, as described in the last issue.

STARTING TO USE PROCEDURES

You now know enough to start writing some procedures of your own, perhaps to do such simple tasks such as setting up the screen, drawing borders, and so on. Remember - you can put any code in a procedure that you would normally put in your program. That includes loops, tests and other control structures, as well as the normal commands. As a general guide, if you have to write a bit of program to do a particular job then put it in a procedure if

the bit of program is used more than once
it is more than, say, a page in length, and
if you reckon the use of a procedure will improve the 'look' and readability of your program.

```
FZ 10 DIM G_MESSAGE$(255)
DK 20 GO# MAIN
HY 30 ------------------------------
HZ 40 ------------------------------
FY 50 PROC STARTUP
KG 60   POKE 752,1
BL 70   SETCOLOR 2,0,0
FW 80   SETCOLOR 1,14,14
TA 90   PRINT "K"
VJ 100 ENDPROC
OQ 110 ------------------------------
OS 120 ------------------------------
GR 130 PROC BORDER
VR 140   POSITION 0,1:? " (38 *'S)"
TY 150   FOR L=2 TO 19
BZ 160     POSITION 1,L:? "*"
HC 170     POSITION 38,L:? "*"
BV 180   NEXT L
FX 190   POSITION 0,20:? " (38 *'S)"
VK 200 ENDPROC
OR 210 ------------------------------
OT 220 ------------------------------
NZ 230 PROC SCROLL
HI 240   L=LEN(G_MESSAGE$)
FP 250   FOR TEMP=L+1 TO 37
BX 260     G_MESSAGE$(TEMP)="."
SX 270     L=L+1
XR 280   NEXT TEMP
ZX 290   WHILE INKEY$=""
PU 300     TEMP=ASC(G_MESSAGE$(1))
NX 310     G_MESSAGE$(1)=G_MESSAGE$(2,L)
TX 320     G_MESSAGE$(L)=CHR$(TEMP)
VZ 330     POSITION 1,22
TK 340     PRINT G_MESSAGE$(1,37)
XW 350   WEND
VX 360 ENDPROC
PE 370 ------------------------------
PT 375 ------------------------------
WW 380 # MAIN
SQ 390 EXEC STARTUP
DD 400 EXEC BORDER
PI 410 G_MESSAGE$="PRESS ANY KEY TO CONTI
   NUE"
KO 420 EXEC SCROLL
NZ 430 END
```

Listing 1

You do not HAVE to use procedures. Turbo Basic will quite happily allow you to go on using subroutines, as in Atari Basic, and, if you want, you can go on using GOTO's all over the place, and creating spaghetti code. Turbo Basic merely gives you the option to put a bit of structure into your programs.

A QUICK INTERLUDE

As a bit of light relief, before I continue waffling on about procedures, the following two commands will be of use if you have ever used the ON ... GOTO or ON ... GOSUB commands in Turbo Basic. I've been trying desperately to plug procedures, and the use of GO# instead of the normal GOTO, however, what if you need to use the 'ON <variable>' type of expression? Do not fear, Turbo Basic has the following commands

ON <variable> **EXEC** procedure1, procedure2, ... procedure n
ON <variable> **GO#** label1, label2, ... label n

What the above will actually do will be obvious to those of you who have used the Atari Basic equivalents. Otherwise, a brief description is in order. The first command means that if the value of <variable> is 1, then procedure1 will be executed. If <variable> has the value 2, then procedure2 will be executed, and so on. As a quick example, suppose that, depending on the

continued overleaf

value of a variable choice, you want to

1. Call a procedure to add
2. Call a procedure to subtract
3. Call a procedure to multiply
4. Call a procedure to divide

the bit of program might look like

```
10 ON CHOICE EXEC ADD, SUBTRACT, MULTIPLY, DIVIDE
```

If CHOICE is 1, then add will be executed, if CHOICE is 2 then subtract will be executed, and so on. When the procedure has been completed, the program will return to the line after the **ON ... EXEC** one.

The **ON ... GO#** command works in an identical fashion.

DUMP and TRACE

To round off this little excursion, these two commands will be of use when you start experimenting with Turbo Basic. The command **DUMP** is usually typed after a program has stopped running, whether it be after a crash or a successful run. You type it in on its own, and press Return - no line number. What DUMP does is to give you a list of ALL variables and their values at the point when the program stopped. It also, handily, lists the names of all procedures and labels, together with the line where they are located. Numeric arrays are shown along with the DIMed values plus one. Strings names are followed by their current length, then the DIM'ed size. Don't worry if you don't follow - just try it! The details tend to scroll past quite quickly, so use CTRL 1 to pause, and browse at will.

The second useful command is **TRACE**. When you type this, and execute a program, as well as the program executing, the computer will also output the last line number completed success fully. In this fashion, you can determine where the computer is when a certain 'thing' is done. It's great but don't take my word for it - try for yourself. When you are finished 'tracing' the program, the command **TRACE** - will disable the feature, and allow program to run without the line numbers being displayed.

Anyway, I've been waylaid long enough - back to procedures!

HOW DO I USE PROCEDURES EFFECTIVELY?

As you have probably noticed, the procedures I have talked about do the same thing EVERY time e.g. always draw a border or, like the following extract, always set up the screen.

```
50 PROC STARTUP
60   POKE 752, 1
70   SETCOLOR 2, 0, 0
80   SETCOLOR 1, 14, 14
90   PRINT "<Clear screen character>"
100 ENDPROC
```

This is useful in itself, but what if you want to influence what goes on inside the procedure (for example, scroll a message)? Simple! You can use variables INSIDE the procedure that are used ANYWHERE else in the program. If you've used Pascal or other structured languages, you will recognise this as meaning that what we have is global variables - Turbo Basic has no local variable. This means that if, say, your main program uses a variable X, then the procedure can use and alter that variable too. In Listing 1, the procedure SCROLL uses the variable G_MESSAGE$, which is set in the main program, and it manipulates this string to achieve the scrolling effect. You can set G_MESSAGE$ to whatever text string you please, up to a limit of 255 characters.

This freedom, however, leads to a problem. I've been trying to describe procedures as being separate entities, independent of one another. But, if all variables are available to all procedures, it is all too easy to inadvertantly alter a variable's value somewhere in your program, not realising that it has affected another part. For example, say you have written a procedure that you use in many different programs. This procedure uses a variable X, which it initialises and changes. This is fine, unless your main program or another procedure happens to also use a variable X. Then, if you alter it in one place, you alter it everywhere. This may or may not be what you want. Be warned!!

I suggest that you use certain names all the time, everywhere, for values that you use to control FOR loops, and as temporary values. (for example, use variables with single letters, or with names such as 'LOOP' and 'TEMP'). For all other variables in your procedures, adopt some sort of naming convention. A good idea is to use some sort of prefix. If you have a procedure, PLOT, which uses its own variables, then you would be better to use variable names like PLOT_X and PLOT_Y, rather than X and Y . Using the underscore (_) in variable names helps to avoid ambiguity.

Finally, if you wish to pass values from your main program to a procedure, use some other convention. I use the prefix G_ in listing 1 - the G signifies global, which reminds me that the value is being passed from the main program. Examine Listing 1, and you will see that I have used G_MESSAGE$, as I mentioned earlier. The value of this is set in the main program, before the procedure call, hence the G_ prefix.

The above is just an outline - do what you find easiest. I understand that the last bit may seem a bit vague and difficult to follow. DON'T WORRY! Experiment for yourself, and you'll most likely master the procedure within a few hours of tinkering. After all - it's only a glorified subroutine!!

TO FINISH OFF

I've included one program (Listing 1) which sets up a screen and border, then scrolls a message until a key is pressed. This is a good example of procedure use, as is the other program (Listing 2) which demonstrates what structuring and use of procedures can do for a program. In Listing 2 you might not, and in fact do not need to, understand what the actual code IN the procedures does, but the procedure names and indenting should help in understanding what each bit does, I hope!

The program is just something I came up with after tinkering for a bit with the **MOVE** command, which I hope to describe in a later article. It draws some pretty patterns on the screen, then proceeds to scroll the top half upwards, and the bottom half downwards. Then various fancy screen fade/wipes are executed, before the whole process repeats. You don't need to understand it to make it work, so give it a go. It should give you a good idea of what Turbo Basic is capable of.

UNTIL NEXT TIME

Well, I guess that about wraps it up for another issue. I hope I haven't lost any of you this time round. I try to write as informally as I can, to keep the articles readable, without getting too technical, but I don't know if I succeed or not. I also fear I have gone on at too great length once more. I can see the Editor shaking his head, even as I write!

Anyway, write to me if you have any questions, and if you want me to cover any particular area in the future. If nobody writes, then I don't know what everyone wants, or thinks, so put pen to paper. I'll be all too pleased to reply.

Next time, I'll try to cover some of the new commands available in Turbo-Basic, such as those for Graphics, Memory and Arithmetic.

Write to me **Gordon Cameron**, at **13 Muir Bank, Scone, Perthshire, PH2 6SZ, SCOTLAND**.

TURBO BASIC DEMO

Listing 2

```
CS 1 REM ##############################################
XC 2 REM #        TURBO BASIC DEMO                    #
OT 3 REM #          (Listing 2)                       #
EB 4 REM #     for ATARI XL/XE ONLY                   #
BH 5 REM #       by Gordon Cameron                    #
XD 6 REM #  PAGE 6 MAGAZINE - ENGLAND                 #
CY 7 REM ##############################################
DT 100 GO# MAIN
OO 110 ---------------------------------
OS 120 ---------------------------------
DA 130 PROC SETUP
EO 140   DIM F$(42),ALT$(7960)
WX 150   ALT=ADR(ALT$)
NN 160   F=ADR(F$)
PI 170   GRAPHICS 24
VF 180   COLOR 1
YL 190   SETCOLOR 1,12,12
SN 200   SETCOLOR 2,0,0
BS 210   TOP=PEEK(88)+256*PEEK(89)
VO 220 ENDPROC
OV 230 ---------------------------------
OX 240 ---------------------------------
GL 250 PROC CURTAIN
UL 260   FOR L=0 TO 39
WL 270     POKE F+L,255
BW 280   NEXT L
KD 290   FOR L=192 TO -1 STEP -1
ZL 300     DUMMY=40*L
NG 310     MOVE F,TOP+DUMMY,40
QU 320     MOVE ALT+DUMMY+40,TOP+DUMMY+40
   ,40
BN 330   NEXT L
VT 340 ENDPROC
PA 350 ---------------------------------
PC 360 ---------------------------------
FE 370 PROC RISE
GA 380   FOR L=191 TO 0 STEP -1
MN 390     MOVE ALT+40*L,TOP+40*L,40
BI 400   NEXT L
VO 410 ENDPROC
OV 420 ---------------------------------
OX 430 ---------------------------------
XG 440 PROC FALL
ET 450   FOR L=0 TO 191
MI 460     MOVE ALT+40*L,TOP+40*L,40
BW 470   NEXT L
WC 480 ENDPROC
PJ 490 ---------------------------------
OS 500 ---------------------------------
FI 510 PROC WIPE
HT 520   L=0
SM 530   WHILE L<41
IX 540     POKE F+L,WHAT
SW 550     L=L+1
YA 560   WEND
ID 570   L=0
ME 580   REPEAT
SN 590     MOVE F,TOP+(L*40),40
SN 600     L=L+1
ZL 610   UNTIL L>=192
VS 620 ENDPROC
OZ 630 ---------------------------------
PB 640 ---------------------------------
OH 650 PROC SCROLL
ZL 660   MOVE TOP+7640,F,40
CU 670   MOVE TOP+4000,TOP+4040,3640
SB 680   MOVE F,TOP+4000,40
WG 690 ENDPROC
OU 700 ---------------------------------
OW 710 ---------------------------------
SW 720 PROC SCROLL2
SP 730   MOVE TOP,F,40
VZ 740   MOVE TOP+40,TOP,3640
YQ 750   MOVE F,TOP+3640,40
WB 760 ENDPROC
PI 770 ---------------------------------
PK 780 ---------------------------------
EP 790 PROC DRAW
HM 800   FOR R=160 TO 0 STEP -10
XL 810     CIRCLE 160,100,R
EK 820   NEXT R
NK 830   FOR L=0 TO 90 STEP 9
DI 840     PLOT L,L:DRAWTO 318-L,L
FX 850     DRAWTO 318-L,191-L
QZ 860     DRAWTO L,191-L:DRAWTO L,L
CA 870   NEXT L
JT 880   PLOT 160,0:DRAWTO 0,191
NG 890   DRAWTO 319,191:DRAWTO 160,0
RJ 900   PLOT 160,191:DRAWTO 0,0
EU 910   DRAWTO 319,0:DRAWTO 160,191
ZL 920   PLOT 160,0:DRAWTO 160,191
FC 930   TEXT 55,92,"  A SIMPLE DEMONSTRA
   TION "
VZ 940 ENDPROC
PG 950 ---------------------------------
PI 960 ---------------------------------
KA 970 # MAIN
AH 980 EXEC SETUP
ZB 990 WHAT=255:EXEC WIPE
AL 1000 WHAT=0:EXEC WIPE
HC 1010 EXEC DRAW
JW 1020 DO
JZ 1030   FOR LOOP=1 TO 96
ZV 1040     EXEC SCROLL
OI 1050     EXEC SCROLL2
KT 1060   NEXT LOOP
AK 1070   MOVE TOP,ALT,7960
GH 1080   WHAT=RND(1)*255:EXEC WIPE
VS 1090   EXEC RISE
FL 1100   WHAT=RND(1)*255:EXEC WIPE
KV 1110   EXEC FALL
FR 1120   WHAT=RND(1)*255:EXEC WIPE
WT 1130   EXEC CURTAIN
MA 1140 LOOP
```

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XL SYSTEM: 800XL, 1050 disk drive, 410 tape deck, lots of software on cassette and disk, loads of magazines, blank disks, joysticks, books and locking disk box. Sell for just £170 (including carriage by next-day courier!!). Phone Mark Wayman on 0422-330573 between 9am and 7pm or on 0422 833236 at any other time.

XL SYSTEM: 800XL, XC12 cassette, 1020 printer/plotter plus 6 spare rolls of paper, 12 cassette games plus joystick. £120. Buyer must collect. Tel (05435) 5096

XL SYSTEM: 800XL, 1050 disk drive, 1010 recorder, joystick, lots of tapes and disks and 2 cartridges (all original) and in good condition. £140. Tel 01-884-4358.

ST SYSTEM: 520STFM, mouse, joystick, 14 software disks. Little used, bargain £225. Speech synthesiser from Page 6 issue 19, £10; Numeric keypad from Atari User October 1986, £8. Compute! books 'Mapping the Atari' and 'Atari Collection Vol.1', £10 the two. Mactronics printer interface for Atari 400, £5. Call: Rochdale (0706) 30244.

ST SYSTEM: 520STFM plus 1Mb Drive, mouse, Fast Basic, Comp Pro J/stick, Dungeonmaster, R-Type plus lots of other games, PD stuff, magazines, boxed (cost £500plus). Sell for £300 o.n.o. Ring James on (061)-620-4053 after 6pm.

XE SYSTEM: 130 XE plus 1050 Disk Drive, Mac 65, Action! plus Toolkit, Mini Office 2 plus manuals, games, all Atari User Mags. plus some Page 6 and Monitor mags. Revised Mapping the Atari, lockable Disk box plus 60 disks and joystick. Excellent condition with boxes. £350. Tel. 03526-5687 after 6pm.

XL SYSTEM: 800XL, 1050 Disk Drive, 1029 Printer, Philips BM7502 green Monitor, white computer desk, lockable disk box. All boxed, plus printer stand, software and disks. £280 o.n.o. Tel. 01-517-8396

SF354 DRIVE: 1/2 meg for ST including well over £100 of original software. £60 o.n.o. Telephone Kevin on (061)-442-4791.

XL SYSTEM: 800XL, 1050 Drive fitted with U.S. doubler, XC12 data recorder, 850 interface, 1020 printer/plotter, 822 thermal printer, touch tablet plus Atari artist cartridge, 100's of disk games, books, magazines and disk boxes. £400 o.n.o. Will split some items. Phone 0908-502778.

XL SYSTEM: 800XL, 1050 disk drive, 1010 cassette recorder, many disks and cassettes, 2 joysticks. All in excellent condition. Also many issues of Atari User, manuals and books, worth over £400, will sell for £250 o.n.o. Tel. Flint 61850 after 4pm.

MODEM: V21, V22, 300 and 1200 baud. Full and half duplex, £75. Datari interface with software, £30 or both for £100. ROM Emulator plus software and instructions, £7.50. Books and magazines. Tel. 0423-879533 after 6pm or weekends.

MEMORY UPGRADE: 256K upgrade for 800XL. Includes 8 x 256k Drams, Decoder, Chip Sockets, full fitting instructions and software. Modified DOS 2.5 gives single density virtual drives D7 & D8. £50. Tel. 0423-879533 after 6pm or weekends.

XE SYSTEM: 130XE and 1010 recorder £50. Original tapes: Tomahawk, Colourspace and Strange Odyssey, £2.00 each. Books: 'Revised Mapping the Atari', '800XL and Beyond', £5.00 each o.n.o. Tel. (0507) 605244.

1029 PRINTER: As new, boxed with paper and software, £125. Phone Darren on (0621) 782826 evenings please.

XL SYSTEM: 800XL, 1050 disk drive, boxed with over 40 public domain disks. Buyer must collect, £135. Tel. 0992-892853 (Nazeing) after 5pm.

1029 PRINTER: Complete with Font IV character chip, £80 o.n.o. Tel. Robert on: 01-363-2847 after 5pm.

MONITOR: Low Res monitor (collect), 1050 disk drive, XCII tape recorder with assortment of cassettes, SpartaDos Rtime clock, Atari Microsoft basic II, MAC/65, all are cartridges with manuals. Two books Assembly Language Programming For the Atari (Mark Chasin) and Machine Language For Beginners (Richard Mansfield), all for £150 o.n.o. Will split or any reasonable offer considered. Phone 0268-743725

WANTED

PROGRAMS: Disk copy of the two programs 'Alpha' and 'Hexpert' (up and running) from the book Atari 130XE machine Language for the Absolute Beginner'. Disk supplied. Ring Harry on (0787) 473136

PAGE 6: Issue 1 wanted. Phone Andy on 0264 781966

DISK DRIVE/PRINTER: 1050 or XF551 disk drive in working order. Epson or any compatible dot matrix printer with or without interface. Will collect anywhere in the North West. Ring Gwen on 061 231 5150

1050 DISK DRIVE/PRINTER: 1050 disk drive (standard or enhanced). Also Epson compatible dot matrix printer with Atari printer cable if possible. Please call Kevin with price and particulars on OXFORD (0865) 711091

XL STARTER: 800 XL and cassette wanted to enable us to get started - ours is rubbish! - also an original instruction book as ours is missing. ROMs and software to suit young user also welcome. Please telephone with price required to Nick Mills (08677) 2298.

ST ADVENTURES: Sierra On-Line originals:- Space Quest 1 & 2, Police Quest 1, Leisure Suit Larry in the Land of the Lounge Lizards, Mixed-Up Mother Goose and Black Cauldron. Packaging unimportant but MUST be original games with full documentation. Please write, stating price and postage costs required to: John R. Barnsley, 32 Merrivale Road, Rising Brook, Stafford, ST17 9EB. ENGLAND.

PRINTER: Atari 1020, 1027 or 1029 in good condition - must be capable of printing graphics. Preferably with manual. Telephone: Mr.T. Paine on Bognor Regis (Code 0243)-822231

PRINTER: Atari 1027 or 1029 with software. Write to: Mark Fenwick, 29 Conway Street, Long Eaton, Nottingham. NG10 2AF.

CASSETTE DECK: 1010, XC or Phonemark. Also manual for Epson LX80, Machine Language 2nd book and De Re Atari. Phone Steve Telford (0952) 618950.

SUPER 3D PLOTTER 2: Help! Does anyone out there have a copy (original) of Super 3D Plotter 2, by Demon Software. If so contact Steve Holmes, 5 Whitmore Avenue, Grassmoor, Chesterfield S42 5AE. (Will pay up to £20 or swap for Mapping The Atari - revised edition).

SUPERSCRIPT: word processor and manual in good order. Phone: 023-13-6183 any time.

XL SYSTEM: 800XL and 1050 drive in exchange for my Commodore C64, datacorder, software, manuals, etc. I will collect if in N.E. England/Scotland area. Phone Steve on 0573-25869.

DISK DRIVE: 1050, Atari Basic Ref. Manual, Your Atari Computer Manual, Mini Office II, plus other business/engineering software. Phone Brackley (0280)-704432, day or evening.

PEN PALS/HELP

PEN PALS: I would like to hear from other 8 bit users around the world, I have a 130XE, two 1050 disk drives, XEP80, the new Diamond GOE, ST Jnr (Graphic Operating environment on cartridge - looks and acts like GEM on the ST). Write or phone. Guillermo Martinez, 243 NE 25th Street, Miami, Florida 33137, U.S.A. Tel. (305) 576-8945

ADVENTURE HELP: Can anyone tell me how to get past the portcullis and the crabs in The Golden Baton (Adventure International)?? Please write to: Tim Herman, 25 Prince Edward Road, Billericay, Essex, CM11 2HB or ring (0277) 631029.

XL/XE OWNERS: Contact wanted from any 8-bit owners anywhere, to exchange hints/tips. All letters answered. Write to: Mick Allsop, 9 Markhouse Avenue, Walthamstow, LONDON E17 8RY. Tel (01)-531-9040.

SIERRA ON-LINERS!! Anyone, any age, anywhere in the world to help me set up a nationwide/worldwide Sierra On-Line Adventure Players Group. Please send your ideas, suggestions, interests and comments to: John R. Barnsley, 32 Merrivale Road, Rising Brook, Stafford, Staffs, ST17 9EB. ENGLAND.

ST PENPALS: Hi! To all Atari users. I'm Julie (29yrs) and I've just become the proud owner of a 520STFM. I need help getting started and I'm interested in graphic art, databases and just writing letters, so come on! All letters will be answered promptly, U.K. or abroad. Write to: Julie, 149 Malvern Crescent, Darlington, Co.Durham, DL3 9UN.

TEXTPRO: I would like to hear from Textpro users. Beginners or experienced users, problems or hints and tips. Let me know. Write to Steve Holmes-Brown, 23 Pool Close, Trench, Telford, Shropshire TF2 6QZ.

XL USER: My name is David. I have an 800XL, 1050 disk drive, 1010 tape unit and a 1029 printer. I am interested in all types of software, adventures, arcade games, etc., all letters answered. Write to: David Foggin, 49 Johnson Street, Lower Hopton, Mirfield, West Yorkshire. WF14 8PQ.

ST PENPALS: If you are interested please write to Daniel Bates, 8 Birches Close, Selsey, West Sussex. PO20 9EP.

LOGO/LISP USERS: Anyone who can help a beginner please. I have some U.S. program literature as a guide. Contact: Jim Cutler, 44 Water Street, Great Harwood, Lancs. BB6 7QR.

ATARI PENPALS: My name is Ole Gerden, I'm 16, male, and am looking for other computing fans to write to in Great Britain. I would very much like to do an exchange to Britain to improve my English and learn more about computing in Britain. Please write (in English!) to: Ole Gerden, Strucksdamm 9, 2390 FLENSBURG, West Germany.

XL PENPALS: I have recently acquired a 1050 Disk drive with laser enhancement for my 800XL and would like any information on Laser software. Write to: Alan Stratton, 25 Stevenson Street, Northampton, NN4 9PF or phone: (0604)-763210.

XL CONTACTS: I am an 8-bit cassette user and I would like to hear from anyone who owns the 800XL and cassette system to exchange hints, tips and news. I have got quite a good collection of budget games and am interested in adventures. Please write to: Darren Maloney, 58 Disraeli Road, Forest Gate, London E7 9JT, ENGLAND.

CONTACT is FREE of charge and may be used by any genuine Atari enthusiast for contacting other owners. Any notice may be included except those offering software only for sale or exchange or those offering items for sale commercially. The Editor reserves the right to omit any notice received at his discresion.

Send your CONTACT notice to CONTACT, PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Please write your notice on a separate sheet of paper, not as part of a letter.

PUT THE RACING GLOVES ON

It's arrived!! Initially advertised in late 1987, Red Rat's SPEED RUN, billed as the most realistic rally game on four wheels, has finally been released on the Atari 8 bit.

Unlike previous race simulations, this one features a 'behind the driver' view from inside a Sierra Cosworth rally car. This display is most impressive, with meticulous care having been taken to re-create the car's interior and dashboard. To the right, the driver is seen to steer and change gear, smoothly and realistically, as you issue commands via the joystick. Through the windscreen, a familiar grey track with red and white kerb stones twists into the distance, with a backdrop of countryside and occasional track-side hoardings. Sound isn't quite so spectacular but Red Rat have included an audio tape in the package for you to play in your hi-fi while



you try out the game.

From the main title screen you can select automatic or manual gearchange mode. Automatic is recommended for beginners whilst manual mode will give those expert drivers a real run for their money as they grapple with the Sierra's 5-speed Gelrag gearbox. Keeping on the circuit may seem challenge enough though as the car slides violently through each corner. Observing the track through the windscreen doesn't really give much of a clue as to your position, and an indicator just below the rear view mirror is therefore provided as an alternative. Don't get too near the edge or you'll crash and have to wait several seconds for the car to be repaired! Crash once too often and your car is disqualified from the rally. Disk owners get an additional bonus in the form of a workshop menu, from which they are able to select either extra tyre grip, fuel injection or a super-efficient repair crew. The latter option is perhaps the most useful as the delay encountered can otherwise become rather frustrating.

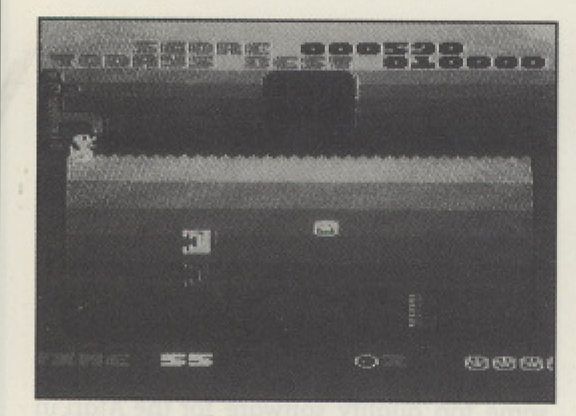
Certain aspects of the game are a little disappointing. For example, there is no indication of your progress in the race and the game simply stops when you have travelled the required distance without any prior warning. There only appears to be one circuit, and after a few goes you begin to long for a bit more variety. There also seems to be a problem - at least with the disk version - which sometimes causes corruption at the top of the screen, detracting somewhat from the otherwise brilliant graphics. Presumably the amount of memory needed to produce that incredible cockpit view meant that sacrifices had to be made in other departments.

Despite a few problems, SPEED RUN is still an essential component of any software collection, if only because it illustrates the superb graphic capabilities of the Atari. If you're willing to persevere with manual gearchange mode then the game should also bring you hours of enjoyment. Innovative stuff, as usual, from Red Rat.

Paul Rixon

Title: SPEED RUN
Publisher: Red Rat
Price: £8.95 cass./£12.95 disk
Players: 1
Control: Joystick

ITS OLD BUT IT'S A BARGAIN!



Budget priced software has traditionally been produced in cassette-only format and this has left a sizeable number of disk drive owners feeling dejected and forgotten. If you are one of them, you'll be pleased to learn that Players have taken the initiative and re-released two of their budget cassette titles - BUBBLE TROUBLE and EXCELSOR - as a disk based 'Zap-Pak'.

Original ideas are few and far between nowadays but BUBBLE TROUBLE is quite unlike any other game on the market. For a start, it's set in a bath tub where you assume the coveted role of a brave bubble (yes, a bubble!) who is eager to escape from the dangers lurking within! The aim is to collect a number of smaller bubbles enabling you to float to safety, whilst avoiding a multitude of vicious bathroom accessories from a plastic duck to a fearsome nail brush which are all out to burst you! Extra points are obtained by eating bars of soap (not a diet I'd fancy!) but speed is of the essence as each level has a strict time limit imposed.

Graphics have been tastefully devised in a humorous fashion to coincide with the bathroom theme. For example, the play area - or bath - fills up with water from an overhead tap which empties through the plug hole when your lives are diminished. Adequate sound, lots of colour and some pleasant special effects add up to make a simple but addictive game that is sure to appeal to younger Atarians.

EXCELSOR has been programmed by the same author as BUBBLE TROUBLE and it shows in the distinctive rainbow shading technique used to create a colourful display. No bath tubs here though - the year is 2136 and the discovery of molecular travel has finally put a miraculous stop to Britain's traffic problems. No more queuing up on the M1, now you can travel anywhere in a matter of seconds! Unfortunately, Alien forces are at work and they've developed a method of capturing human souls during the transportation process, suspending them in pure Nexus energy as 'Soul stars'. As one of the few remaining humans, you must don your Excelsor Prototype Jetpack and attempt to free the souls before the Aliens capture yours!

It's not a bad story, as excuses for shoot 'em ups go, and you'll have realised by now that each level in the game is essentially a case of collecting a set number of soul stars whilst avoiding, or eliminating, the Aliens and other static nasties that serve to hinder your progress. Plenty of fast action is assured and some good visual and sonic effects are included for good measure. EXCELSOR is certainly one of the better budget games currently available.

Full marks to Players for showing some understanding and letting disk owners get a taste of the bargains for a change. Budget priced disks are something I'd like to see a lot more of. Other companies take note!

Paul Rixon

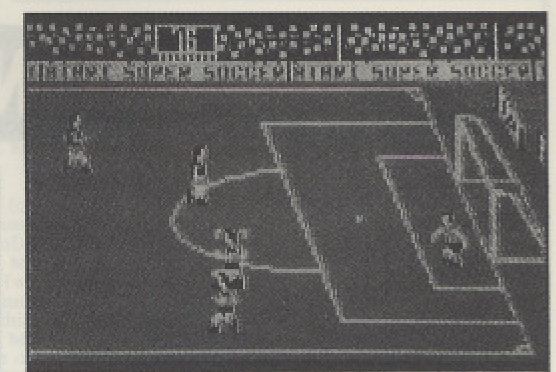
Title: Zap-Pak
Publisher: Players
Price: £4.95 on disk
Players: 1
Control: Joystick

BUT DON'T PUNCH THE REF!

Of all the sports in existence, football has got to be one of the hardest to computerize. Just how can you simulate a team confrontation involving twenty-two players with only one or two joysticks? Not very realistically is the truthful answer to that one, and for this reason most of the football games released in the past have simulated the managerial aspects rather than the sport itself. Thorn EMI were the first to have a go at something different with a cracking little game called, somewhat uninspiringly, Soccer and Tynesoft recently added their contribution in the form of EUROPEAN SUPER SOCCER. So how does it measure up?

SUPER SOCCER opens up with a well-designed title sequence, complete with an appropriate musical accompaniment. One or two player mode is selected at this stage by a press of the OPTION key. You are next required to select your team nationality from a choice of six alternatives by positioning a cursor over the flag of the desired country. An opposing team is then randomly appointed. In fact, it doesn't really seem to make much difference which country you select, as the team colours do not feature in the game thereafter and subsequent reference to either side is simply made by specifying 'home' or 'away'. Once the selection procedure is complete, the players emerge onto the pitch, a whistle sounds and a timer starts counting downwards for the first half of play. In the background, an atmospheric hiss of the crowd is heard which later increases in volume when a goal appears imminent.

The pitch scrolls horizontally over about three screen widths in a rather jerky manner. Each team's players - distinguished by their contrasting dark and light shirts - are quite large in size, and although this initially seems attractive it is clearly delivered at the expense of playing speed. A white square around a player's body indicates that he is the one currently under joystick command. This may change if another player of the same side happens to be in



the path of an oncoming ball. Unfortunately, some of the computer-controlled players on your team seem less than committed to seeing their side win, and can sometimes hinder rather than help your progress! When an opposing player approaches your goal, a press of the fire button sends the goal keeper into a fearless dive - not always in the right direction but occasionally making a save! Corners, knock-ins and goal kicks are automatic. As for headers, there aren't any as the ball seldom travels higher than chest height!

For a one player match, EMI's Soccer is, in my opinion, eminently more playable than the Tynesoft game but for two players, SUPER SOCCER would appear to be a worthwhile alternative. If you're tired of staring at league tables and want a slice of the real action, this is probably the ideal game for you.

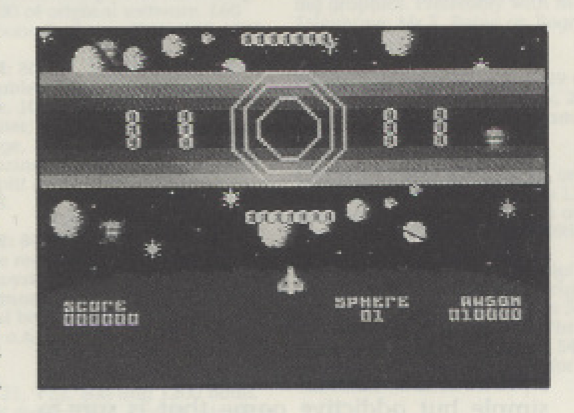
Paul Rixon

Title: EUROPEAN SUPER SOCCER
Publisher: Tynesoft
Price: £8.95 cass./£12.95 disk
Players: 1/2 with joystick(s)

UP ABOVE THE EARTH SO HIGH

STRATOSPHERE is, in effect, the sequel to Excelsor which is reviewed elsewhere in this issue. According to the plot, it's five years on and the battle to save humanity from an Alien invasion has almost been won. Note the 'almost' - due entirely to a number of hyperspatial Motherships that have somehow survived the previous encounter and are now menacingly orbiting the Earth. And guess who's job it is to get up there and finish them off, once and for all?! This time you abandon the Excelsor prototype jetpack and head for the stars in a craft described as a 'sleek bi-wing fighter'.

The Motherships are protected by layers of spherical shielding, and you are expected to break these down by repeatedly firing missiles at them. Avoiding the deadly 'soul-suckers' on patrol in the vicinity is an added complication. The action takes place on a single screen - there isn't any scrolling as your craft simply wraps around if you steer it across a screen boundary. A Mothership is located in the centre of the playfield, surrounded by three rings of shielding and various static obstacles which together turn the game into a sort of inter-galactic pin-ball machine! In some ways the graphics are



reminiscent of First Star's excellent Astro-Chase, but the much acclaimed rainbow colouring technique has been over-used in an attempt to disguise an otherwise rudimentary screen construction.

Your ship is poorly defined, mono coloured and travels rather quickly relative to the size of the play area. It can move in all eight joystick directions - an ability that can quickly lead to utter confusion, especially in such a small arena. It's not made any easier by the ship's irritating habit of becoming stuck between the obstacles! Eliminating those pursuing nasties is certainly not the effortless job it seems at first! Once the shielding has been successfully disposed of, the mothership is quickly eliminated and the preceding level of play begins. The screen designs differ throughout the levels but the underlying task remains identical.

STRATOSPHERE is an extremely simple game and I'm afraid the content is just insufficient to maintain a player's interest for any length of time. Playability is a most important quantity for an arcade game and on this occasion I could sense no power of addiction willing me to have 'just one more go'. Players have produced some top quality software for the Atari in the past and have more lined up for the future so I guess this momentary lapse of standards shouldn't be viewed too harshly. Best give this one a miss and see what the next offerings are like.

For those who are interested, nonetheless, the game is also available on a disk based 'Zap-Pak 2' at £4.95. It is paired with Dizzy Dice, a fruit machine simulation that was reviewed fully in PAGE 6 issue 31.

Paul Rixon

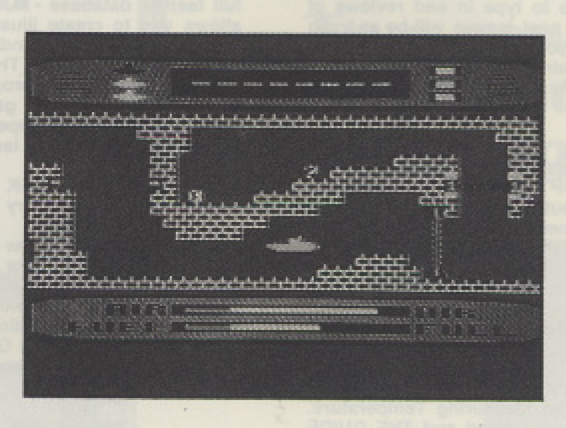
Title: STRATOSPHERE
Publisher: Players
Price: £1.99 on cassette
Players: 1
Control: Joystick

UNDERWATER ESCAPADES

When you've jumped a thousand platforms, annihilated countless Aliens and piloted innumerable helicopter gunships through the evil tyrant's fortress, the arrival of a new £1.99 arcade game tends to be greeted with less than an outburst of enthusiasm. Let's face it - these budget 'jobs' are all much of a muchness, aren't they? Well that's what I thought until I started playing PERISCOPE UP. Little did I know that it would turn out to be Atlantis Software's best release to date.

Why? Graphically the game is unlikely to raise any eyebrows, sound is of the familiar uninspiring nature synonymous with software of this type and the concept is anything but original. But what it does have, most importantly perhaps, is that one essential ingredient that can make or break any arcade game - addictiveness.

Title: PERISCOPE UP
Publisher: Atlantis Software
Price: £1.99 on cassette
Players: 1
Control: Joystick



Put simply, you'll always want 'just one more go', even if the thing frustrates you or your favourite TV serial is just starting.

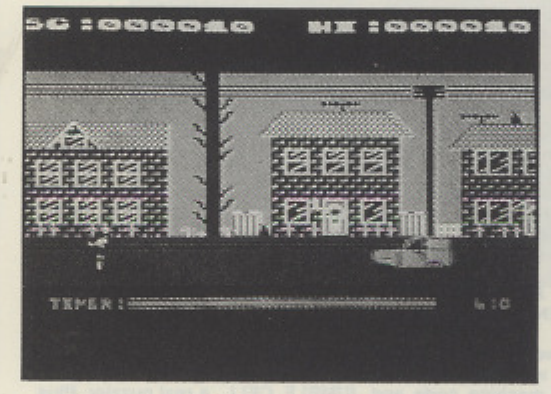
For those who keep track of twenty first century predictions, as concocted by the staff writers at Atlantis, it's now the year 2007 and disaster looks imminent as Britain's VAX 3000 Super Defence Computer has malfunctioned (obviously not an Atari model!). Consequently, hundreds of nuclear missiles could be launched across the world, triggering global thermo-nuclear war. Being a crucial element of the nation's defence, the VAX 3000 is heavily protected against infiltration and the only way for you to save the day, it seems, is by traversing the miles of underwater access tunnels remaining from the time of its construction. All you've got to do is to navigate the underground passages in your submarine, locate and destroy six reactor pods and collect eight digits of a passcode which will eventually shut down the computer.

There are certain similarities with mastertronic's Powerdown here as the tunnels are frequently blocked by doors and laser gates which must be skilfully dodged or opened using numbered keys accumulated en route. There are various other obstacles too and any contact with these or the surrounding walls is naturally fatal. All this and you may forget to keep an eye on the fuel tanks, but don't because the result is equally catastrophic. Joystick controls are simple but slightly unusual in that a press of the trigger passes command over to a small scout craft which is used for the collecting of articles and for shooting at the reactor pods. The submarine is unable to perform either of these tasks but the scout can only move within the boundaries of the current screen. There are three scouts allocated to each submarine and two submarines in reserve. A fair provision of extra lives in my opinion.

At first glance it seemed like PERISCOPE UP would be just another of those tedious cavern games but experience has proved otherwise.

Paul Rixon

HENRY THE LOONY LEAPER



Alternative Software have a habit of re-releasing old Atari software from a variety of different companies, but this time they've obtained a game that hasn't actually reached the shelves before. LEAPSTER was originally intended to be a full-priced Red Rat publication, but for one reason or another, never quite made it.

In the game you play the part of schoolboy Henry Leapster, whose quest is a strange, but straightforward one - to get to school on time! Unfortunately the authors of the game were unable to dream up a suitable plot so you've just got to accept that this journey involves travelling through a missile base and a grave yard! For reasons unknown, Henry can't progress from one location to the next without first collecting a certain number of objects such as suitcases, keys and multicoloured question marks(??). These are located in suitably inaccessible places such that Henry must jump onto other objects - most notably cars travelling along the high street - to reach them. Accurate timing is a necessity as Henry can easily get flattened by the passing vehicles, and he must also avoid missiles, troops and Zombies among various other adversaries that you certainly won't recall from your school years. There's a time limit to each screen too - presumably the headmaster is in hot pursuit with his cane!

Music on the title screen is quite pleasant but this continues into the game at a much slower pace, the ability to turn it off therefore being much appreciated. Graphics are quite good - the vehicles especially so, being recognisable models - although the background colouring did bring back long-forgotten memories of Who Dares Wins II (i.e. lots of brown!). Henry himself is quite nicely animated and responds quickly to the joystick.

Apart from the ludicrous plot, my only major criticism concerns the lack of any status information. For instance, we're not informed on the title screen whether the music is currently switched on or off, despite the necessity to select the desired state before the game itself commences, and there is also no indication of the number of objects required to complete each screen. This makes it necessary to repeatedly move Henry towards the right hand edge of the playfield to see whether the next location will then scroll in. As the vehicles also appear from this side of the display, the procedure does have potentially disastrous consequences!

Overall it's not hard to see why Red Rat had second thoughts about adding LEAPSTER to their range but in this revised budget format from Alternative Software it's got to be worth the effort. Alternative is perhaps the operative word as there aren't many other games quite like this one!

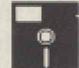
Paul Rixon

Title: LEAPSTER
Publisher: Alternative
Price: £1.99 on cassette
Players: 1
Control: Joystick

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DISK AVAILABLE - incudes BONUS PICTURES for Graphics Workshop

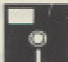
ISSUE 21 - A packed issue with games, TRAIN CRAZY, REVENGER and FORKLIFT. Utilities SCALEMASTER, QUICK DISASSEMBLER and Measuring Temperature. Programming hints with Doing The Impossible, Error 8 Solved and THE GUIDE TO ERROR CODES. Reviews of Flight Simulator II, Hitchhiker's Guide to the Galaxy, and the latest Adventures. For the ST a DEGAS to NEO converter, Lattice C reviewed and reviews of a whole host of software.


DISK AVAILABLE. All programs ready to go.

ISSUE 22 - More serious users will enjoy SMARTSHEET, a Visicalc like type-in spreadsheet, plus our review of Paperclip whilst gamesters will puzzle over TRICKY CUBES and try to survive HIDDEN DEPTHS. The Guide to Error Codes is concluded and there are articles on Fractals, Tape Problems and some less well known Adventures. Loads of reviews and some great new routines for Blockbreaker. ST users will find out how to program Sprites and can read reviews of Time Bandit, Pro-Fortran 77, VIP Professional and more.


DISK AVAILABLE - DOUBLE SIDED! Contains TWO versions of TRICKY CUBES and new versions of BLOCKBREAKER.

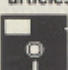
ISSUE 23 - Another superb machine language game WATER SKI SCHOOL will test your reflexes. WORDSEARCH will challenge those who like puzzles and other listings include SUPERCLOWN and the utilities XREF and VERIFY. A huge review of Ultima IV heads a comprehensive review section and Going Online Part 1 will let you know if telecommunications is for you. ST owners can discover how to get a bigger screen on their colour monitor and read reviews of Zoomracks, Sierra On-Line adventures and Pro-Pascal amongst others. Also, is it worth adding a 5/4" drive to your ST?


DISK AVAILABLE. Contains TWO BONUS PROGRAMS!

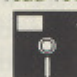
ISSUE 24 - The biggest issue so far published! Great ST section with info about ST disks and cartridges and loads of reviews. For 8-bit users there is MUNCHY MADNESS, the best game we have ever published plus a super cheque book utility AUTOCHECK. Plus all about checking your disk drive, another game called FLYING HIGH, more utilities, reviews of RAMBIT, Adventure games and lots more. Too much in this issue to list fully!


DISK AVAILABLE - Don't miss MUNCHY MADNESS, the best game we have published so far!

ISSUE 25 - Another biggie! A must for 1029 printer owners with 3 great utilities including a SCREEN DUMP. A super Japanese chess game called SHOGI, a type in REVISION C BASIC, a full feature on disks and more. For ST, type in OTHELLO, reviews of LEADER BOARD and MEAN 18, Hints and Tips and several other reviews and articles.


DISK AVAILABLE - ALL THOSE 1029 PROGRAMS READY TO GO!

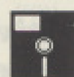
ISSUE 26 - SOLID MODELLING is one of the best non-game programs we have published. Be creative! Other programs include SOURCE WRITER for machine code programmers, FLEXIBLE FINGERS to help you type, NUTS and more. Reviews of TRIVIAL PURSUIT, DVC/65, SPEEDSCRIPT and much, much more. ST users can learn all about HARD DISKS, FAST BASIC, TYPESETTER ELITE, DEGAS ELITE and read reviews on a whole lot more software.


DISK AVAILABLE - DOUBLE SIDED! TWO full sides with BONUS SCREENS for SOLID MODELLING!

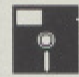
ISSUE 27 - Some cracking listings for the 8-bit. In GREAT BRITAIN LTD. you can be the Chancellor and help run the country. COMPUTER GAMMON is a great Atari version of backgammon and there's ANTS IN YOUR PANTS, DISK COMMAND and others. There is a feature on word processing and stacks of reviews. The ST section includes an in-depth review of ART DIRECTOR and a neat little program to put scrolling stars on your screen! Lots of reviews including HABAVIEW, K-SPREAD 2, K-WORD and many more.


DISK AVAILABLE - some L-O-N-G LISTINGS!

ISSUE 28 - Extend the incredible original Munchy Madness with the MUNCHY MADNESS SCREEN DESIGNER, play GREEDY CATERPILLARS with a friend, teach your children with MOST HEART MATHS or make up some crosswords with XWORD. A long feature on flight simulation programs, hints on ZORK and loads of reviews. For ST users, the first in a series of USING GEM from C plus FLIGHT SIMULATOR II reviews, new books from COMPUTE! and a whole stack of reviews.


DISK AVAILABLE - Also contains the winning title screen from our competition.

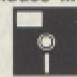
ISSUE 29 - One that serious 8-bit users have been waiting a long time for - a great full feature database - MJDBASE plus an amazing story maker, STORYBOOK, that allows you to create illustrated stories. Then there's a great game from ANTIC called CLIFFHANGER and an AUTORUN maker and more. Cheat on commercial games with ZAPPING THE RIGHT BYTE and read stacks of reviews. The ST section has a type-in program, SCREEN GRABBER, which allows you to 'snatch' pictures of commercial games to disk, plus the next part in our GEM FROM C series and reviews of Superbase Personal, K-COMM 2 plus lots of games including Barbarian. Another big issue.


DISK AVAILABLE. DOUBLE SIDED. With BONUS story for STORYBOOK and STORYBOOK reader.

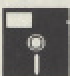
ISSUE 30 - A great follow up to Solid Modelling allows you to animate 3-D objects. Try 3-D ANIMATOR. How about a puzzle with LETTER CASTLE or an arcade style shoot-up from ANTIC called DESERT CHASE? Articles inlcude an in-depth look at GUNSLINGER, *Genealogy With Your Atari* and First Steps on saving screens. Loads of reviews including AUTODUEL and P:R: CONNECTION. The ST section includes the continuing GEM series, CYBERSTUDIO, ZOOMRACKS II and loads of games and serious reviews including GFA BASIC, K-Roget, Jupiter Probe and more.


DISK AVAILABLE. DOUBLE SIDED with BONUS MACHINE LANGUAGE ADVENTURE only on the disk!

ISSUE 31 - Our massive survey on all the WARGAMES available for the 8-bit Atari heads this issue which also includes a great type-in synthesiser listing called ORIGINAL SYNTH. Other listings include FONT FACTORY, a nice character editor and a challenging game called BOWL TRAP. A feature on SSI, more Tutorial Subroutines, a long feature on THE NEVERENDING STORY, reviews of ROADWAR 2000 and THE DUNGEON plus many more are also in this issue. ST SECRETS, a new series on ST programming begins with a look at sound and the ST reviews section includes IMG SCAN, BASE TWO, TEMPUS and many more.


DISK AVAILABLE - All the extra files for ORIGINAL SYNTH set up ready to run plus all the other listings.

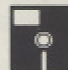
ISSUE 32 - A great card game for 8-bit users called, rather uninspiringly, WHIST plus a two player game of TENNIS and a GRAPH MAKER that works on the 1029 printer. A new series starts on EXPANDING YOUR ATARI and there is an excellent program/tutorial on BUBBLE SORTING. Reviews include THE PAWN, GUILD OF THIEVES, SPARTADOS/U.S. DOUBLER and many more. ST users can find out about programming graphics with ST SECRETS and can read all about the TURBO DIZER, PC DITTO plus reviews of Tanglewood, Defender of The Crown, Winter Olympiad, PROSPERO FORTRAN and more.


DISK AVAILABLE - DOUBLE SIDED with BONUS MACHINE CODE ARCADE GAME only on this disk.

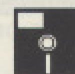
ISSUE 33 - Many readers have said this is our best issue yet with an extensive feature on choosing a printer for your Atari, plus HEAVY METAL, a superb type-in machine language arcade game. Other type-in listings include another game, CRYSTAL CRISIS and two utilities, COLOUR TUNER and SOFTKEY, the latter being a super keyboard 'macro', utility. ST owners can find out more about PROGRAMMING GEM with another article in the series and there are loads of reviews including MASTERPLAN, GUNSHIP and SPECTRUM 512. There's much more in this issue besides, including some great music for the 8-bit.


DISK AVAILABLE - including TWO BONUS GAMES that are not in the magazine.

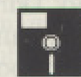
ISSUE 34 - An ADVENTURE special to delight all fans of Atari Adventuring. Exclusive and extensive interview with LEVEL 9, two TYPE-IN 8 bit ADVENTURES, games reviews, bumper A-Z HINTS AND TIPS for all kinds of adventures, a survey of almost every known Atari adventure and much more. Other items include DAVE T'S DISCO, FLYING BY THE BOOK, TUTORIAL SUBROUTINES, the SHELL SORT and the regulars. ST File includes a round up of ST adventures, a review of DUNGEONMASTER, hints on adventures and stacks of general games reviews.


DISK AVAILABLE - includes TWO BONUS ADVENTURES only to be found on this disk.

ISSUE 35 - Use your powers of deduction TIME TO KILL to solve a crime Cleudo fashion, bend your mind with BALLBENDER, a very different game. Other great gams include REFLEX in machine code and JUMBLE CELL, a real puzzler. Plus HOW TO WRITE YOUR OWN BOOK on a 130XE, CHARACTER ANIMATION, STRUCTURED PROGRAMMING plus the usual host of reviews. The ST section includes MAD, the best type-in ST listing so far published - type it in ST BASIC, end up with a machine code game! Also, a comprehensive article on VIRUSES, what they are and how to deal with them. Loads of games and other reviews.


DISK AVAILABLE - includes BONUS machine code game only on the disk. ST DISK also available for this issue with MAD ready to run.

ISSUE 36 - Another cracking machine language game from Paul Lay called STAR RIDER plus HEADBANGER, also in machine code, MUSIC BOX and SYNTH II to type in. MAPPING YOUR ADVENTURE shows you how to succeed in adventures, 850 SPLIT reveals secrets about the 850 interface, DESIGNER KEYS allows you to customise the keyboard. Then there's BEGINNER'S BASIC plus a new series on TURBO BASIC, reviews of MERAK, Draconus, Joe Blade and more. For the ST we have B BOOT to allow you to boot from drive B, STOS reviewed, TRIP-A-TRON, SPELLBOOK, SUPERBASE PROFESSIONAL all reviewed and you can find how to never get lost again with AUTOROUTE. All this plus much, much more.


DISK AVAILABLE - includes BONUS MACHINE CODE UTILITY to add 128 colours to Atari Artist or Micro-painter pictures.

DON'T FORGET BONUS PROGRAMS ON MOST DISKS!

BACK ISSUES are £1.20 each in the U.K., £1.95 for Europe or surface mail elsewhere and £2.75 for Air Mail outside Europe
ISSUE DISKS are for any 48k or 64k 8-bit Atari. Each disk is £2.95. Postage FREE in U.K. Overseas add £1 per order (any number of disks)
Send your order to PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR, ENGLAND. ACCESS and VISA accepted. Telephone 0785 213928



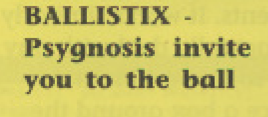
Do you want to be a HERO?

Two new Fantasy Role Playing games compared

see pages 68 and 69



SKYFOX II from Electronics Arts

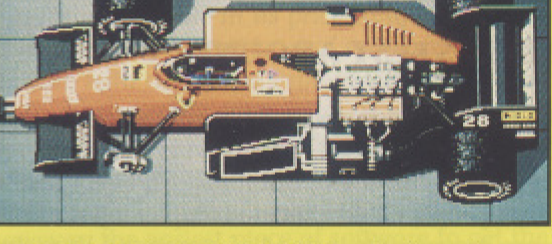


BALLISTIX - Psygnosis invite you to the ball

CAPTAIN FIZZ MEETS THE BLASTER-TRONS



3D POOL from Firebird - let's hope that it's faster than Eddie Charlton!



FERRARI FORMULA ONE gaining championship points

ST NEWS

Electronic Arts are getting busy again with FERRARI FORMULA ONE scorching its way around all 16 circuits of the 1986 Grand Prix season with driving and strategy based on actual events of the 1986 season, you can thrash Ayrton Senna for just £24.95. Up in the air, EA have SKYFOX II also at £24.95 with a new plot, enhanced graphic animation, better sounds, faster action and a more realistic sensation of flying (that's what the press release says!), can you afford to miss it? 3D POOL from Firebird at £19.99 looks interesting with the ability to actually walk around the table and take shots from different positions and featuring 'Maltese' Joe Barbara who apparently is a real person and European Pool Champion to boot! Jeff Minter is back and blasting with ANDES ATTACK full of frenetic action, fast, colourful and only slightly weird but guaranteed to leave you senseless and all for just £9.95! The man reckons £20 for a game that takes a relatively short time to write is a rip off so Llamasoft blasts in at a more realistic price, pity a few others don't think (and do) likewise ... GRIDRUNNER is coming next. Cascade have D.N.A. WARRIOR where you pilot a microsubmersible through the blood stream to stop the erratic growth of a second brain (yuck!), it says the price is £19.96 (every penny counts). The ultimate pinball game is TIMESCANNER from Electric Dreams for £19.99 with two levels to each level and each level only accessible from a time tunnel on the previous level (or was that three levels with ... ?). From Activision comes REAL GHOSTBUSTERS at £19.99 and MILLENIUM 2.2, a strategy game set in the year 2200 with tactical strategy, arcade type 3D action and puzzle solving with graphics of "sheer beauty". Announced as 'coming soon' is GOLD RUSH from Sierra, not announced (amid continuing rumours that Infocom is pulling out of the ST market) is ZORK ZERO. Finally, close the page a bit, nobody looking? Okay, fancy some HardCore Software? Oh, it's only a MIDI program and that's the name of the company. Still, if you are into music you can get DATA DUMPER for the Kawai K1 synthesizer for £29.95 with a version for the Casio CZ and Yamaha DX series to follow.

Protext ...

Serious word processor's do it without GEM

In the world of the ST word processor, Protext is different. You can tell as soon as you load it up - white text on a black background. Clearer and more relaxing, I thought, especially on a TV, but this, and just about every other default setting imaginable can be changed to suit your own needs and temperament if you don't happen to like it.

The next thing you notice, with a slight burst of panic, is that the program is sitting there waiting for you to TYPE IN a command. Yes, really. No menus, no windows, just like the way our great grandfathers did it. At first, this is a bit daunting, since you have to learn the commands and enter them in a command area, and then you can even take another memory test by learning the combinations of key presses that let you access the commands directly. It looks like you might have to read the manual after all. Arnor are very understanding about this. In their own words, "manuals are items that come with programs, are intended to be used to prop the keyboard at a better angle and are only to be read when all else fails!". Realizing this, they have tried to make their 4 cm thick offering as readable and useful as possible, and generally they've done a very good job with it, pointing the user to the sections which demonstrate how to make use of the program before trying to impress him with some of the more esoteric functions. The tutorial documents supplied on disk are similarly well thought-out, being simple without giving the impression that you must have recently had a lobotomy. If you spend half an hour or so with the tutorials, you'll be in a position to use the most basic parts of Protext, with help available on-screen to prompt your memory.

THE FASTEST AROUND?

The point of all these typed-in commands is that by using them, GEM can be bypassed. Now GEM is very nice, very pretty and so easy the cat can use it, but it just isn't very fast. It was invented so that people could execute complex operations using simple mouse movements instead of command lines. In one sense, Protext is a step backwards since it relies on the user putting in some extra work to get anything out. On the other hand, it allows Protext to carry out operations such as scrolling at speeds beyond those of any other word processor on the ST - Tempus is reputedly faster but it isn't a full fledged word processor.

As an example, one area which benefits from Protext's speed is the search and replace facility (see table 1).

Not only does it zap through a document and give a report of how many words were found, it's also able to cope with command codes, so that, for instance, as well as normal word or phrase replacement, any unwanted blank lines can be replaced by searching out the code for a hard return. Control codes, hard returns and the like can be shown on screen if you wish at the expense of the WYSIWYG display, appearing as inverse video characters.

TABLE 1:
Time taken to replace 37,000 a's with 37,000 e's

WordPlus 3	283 seconds
Le Redacteur	119 seconds
Protext	46 seconds

To go through every single command available in Protext would be much too boring to read (and far too much like hard work to write) so instead I'll just say that it has all the normal, basic facilities you'd expect from a good word processor, usually with a few extra bits tagged on, and I'll only touch on some of the more unusual features.

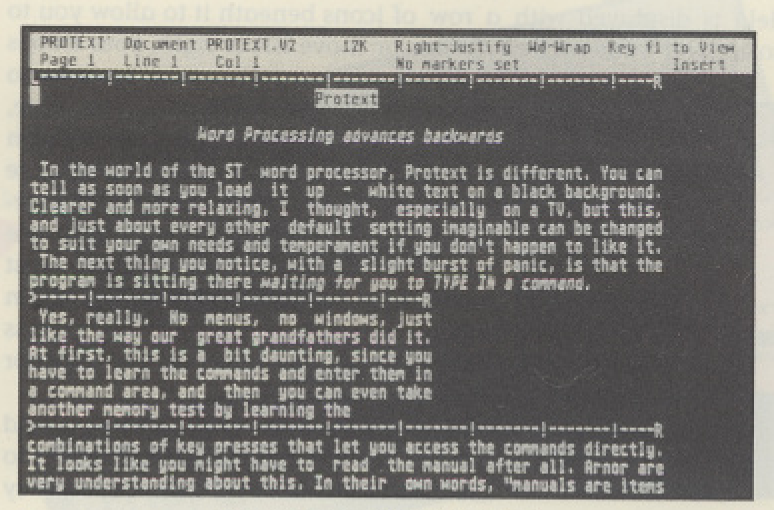
One of these is the Box command. Using this it is possible to construct pseudo multi-column documents. It works similarly to the normal Block commands, but will actually deal with any area that a box can be drawn around, so if you format a document as one column, you can place a box around the second page and move it up next to the first, giving the layout of a two-column page. Any further editing will, unfortunately, destroy the format, so make sure everything's finished before you try moving it around. Another way of achieving the same thing is to use Protext's extensive print commands to print only the odd numbered pages, rewind the paper, change the margin and ask it to print the even numbered pages, also useful when you want to print on both sides of the paper.

Typewriter mode lets you send text directly to the printer, which is ideal for writing the occasional envelope or short memo. Marked blocks can also be printed directly, so any small sections of text that you want to check the look of can be printed independently. Similarly, a block can be saved to disk, either in Protext format or as ASCII.

AN EXTENSIVE DICTIONARY

The spell checker is incredibly versatile, being able to search for wild cards of any length and in any order. This means that it can solve anagrams, help you out with the crossword puzzle or tell you all the words in its (updatable) dictionaries that have sixteen or more letters and what words of any length have two x's in. It is also incredibly fast, as long as you have enough memory to put the dictionaries onto a RAM disk. If you only have a 520 with floppy drive, then the disk is consulted for every word, and speed drops considerably. One strange thing about the 70,000 word dictionary is that it recognizes words that I didn't even know existed: I can understand the inclusion of 'pc', but have you ever heard of the word 'xx' for instance? There is also a German dictionary available and doubtless other languages will be catered for at a later date. Unfortunately, there is no thesaurus, something I find invaluable and would have expected to find in a program of this quality. Hopefully this will be available in future versions.

Disk management is possible with one fairly major omission: No formatting. Again, this will hopefully be included later. The catalogue command does, however give the remaining disk space, and the top information line gives a continual update on the size of the document, so you should always know if you have enough space to save your work. Also, the latest version of Protext gives you access to desk accessories, so a small format accessory will solve that problem.


PROTEXT Document PROTEXT.V2 12K Right-Justify Wd-Wrap Key f1 to View
Page 1 Line 1 Col 1 No markers set Insert

Protext

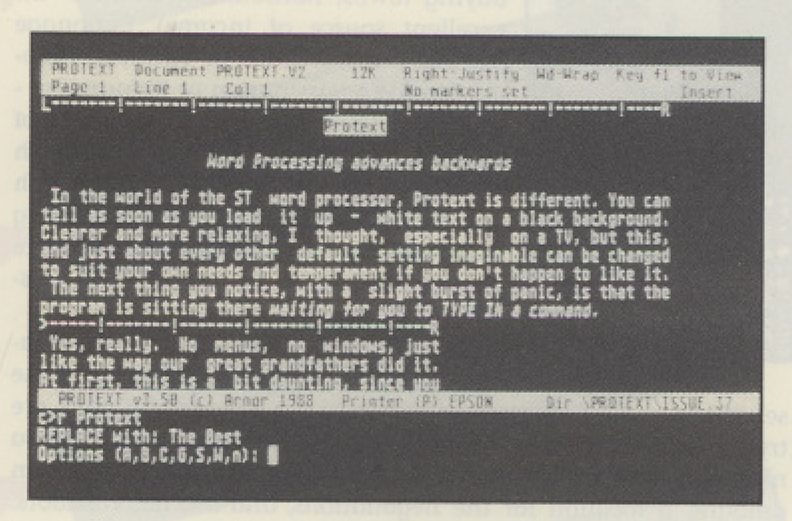
Word Processing advances backwards

In the world of the ST word processor, Protext is different. You can tell as soon as you load it up - white text on a black background. Clearer and more relaxing, I thought, especially on a TV, but this, and just about every other default setting imaginable can be changed to suit your own needs and temperament if you don't happen to like it. The next thing you notice, with a slight burst of panic, is that the program is sitting there *waiting for you to TYPE IN a command.*

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combinations of key presses that let you access the commands directly. It looks like you might have to read the manual after all. Arnor are very understanding about this. In their own words, "manuals are items

Protext's smei-WYSIWYG display


PROTEXT Document PROTEXT.V2 12K Right-Justify Wd-Wrap Key f1 to View
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PROTEXT v2.50 (c) Arnor 1988 Printer (P) EPSON Dir \PROTEXT\ISSUE.37
c>r Protext
REPLACE with: The Best
Options (A,B,C,G,S,W,n):

The separate command mode from which features like search and replace and spell checking are performed

reviewed by Piper

OTHER FEATURES

Protext includes a calculator mode which has options to insert the result of any calculation directly into the text with up to nine decimals. Addition, subtraction, multiplication and division are supported, with brackets forcing the order of calculation away from the normal MDAS.

Mail merging with Protext is almost a language unto itself, containing conditional clauses like IF, ELSE and even UNTIL. Using these means that you can treat your data file almost like a data base, only sending out letters to those addresses which fulfil a certain condition, inserting variables and deciding how many decimal places should be included in calculations. The printing itself can be proportionally spaced by using the microspacing command, even if your printer doesn't support proportional printing, and the background printing facility allows you to carry on working whilst the printer is still thumping out your last document.

Special characters can be accessed directly from the keyboard, in fact, Protext allows you to almost completely redefine the keyboard, allowing whole phrases to be stored as one key press. These phrases, along with any special formats and screen settings can be saved as EXEC files, and loaded up into any other document thereafter, very useful if you spend half your time writing in a language other than English and frequently want to use 'non-standard' characters. For long phrases, or strings of commands, there is a 'record' mode, which will remember each keystroke, then 'play back' that same sequence whenever you call it up. These macros can be up to 255 characters long and include commands, text and calculations. If 255 characters isn't enough for you, the end command of one macro can be used to call another macro, the linked pair being performed as one operation. Used sensibly, macros can greatly extend the usefulness of the package, for example by recording search and replace operations on a series of words which you abbreviate while writing, but which you want in full in the end product. One macro will cope with all the replacing in one go. This technique can also be used to convert files in other formats over to Protext format, replacing all the 'alien' control codes with 'native' Protext ones. Once you're satisfied with your key definitions, they can be saved as a separate KEY file, which can be reloaded at any time.

The graphics capabilities of Protext are its greatest limitation, consisting solely of a line drawing facility with which sections of text can be outlined, nice for giving tables a more professional look, but little else.

The price of Protext puts it firmly in the 1st Word Plus range, so now you're probably expecting some sort of comparison and for me to say which I think is the best buy. Tough. Although they are both word processors, their approach is totally different, and it's going to be down to individual preference as to which is best for you. Protext is, I believe, the most powerful and versatile word processor currently available in its price range, and Arnor are in the process of releasing other pieces of software designed specifically to interface with it, such as Protext Office, and they already include with Protext a file conversion program so that if you have documents created on other word processors, including 1st Word Plus, you don't have to start all over again just because you bought something new.

Protext is not, however, the easiest piece of software to get the hang of, simply because of the amount of information that has to be assimilated to make use of even half of its facilities, and it is not always the most friendly either (it's possible to get the ever-popular 'PC bus error' message by asking it to do things which the manual specifically forbids.). Here 1st Word, and just about any other GEM based program, wins hands down. If you bought your ST in order to get away from command lines, Protext is not going to hold much appeal to you, but if you want full control and facilities that you don't even realize you want until you've got them, then a little effort with Protext will leave you happy for a very long time.

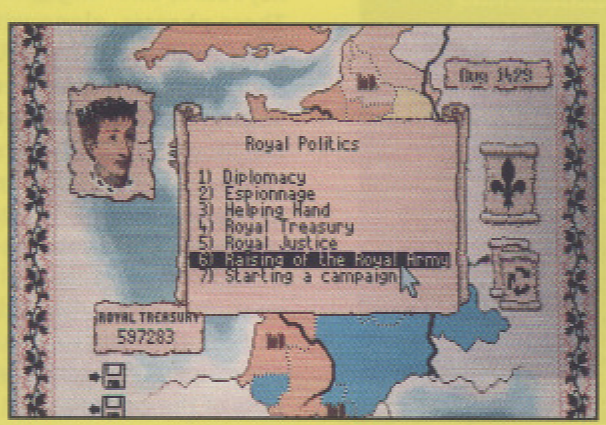
PROTEXT
Published by Arnor
Price: £79.95

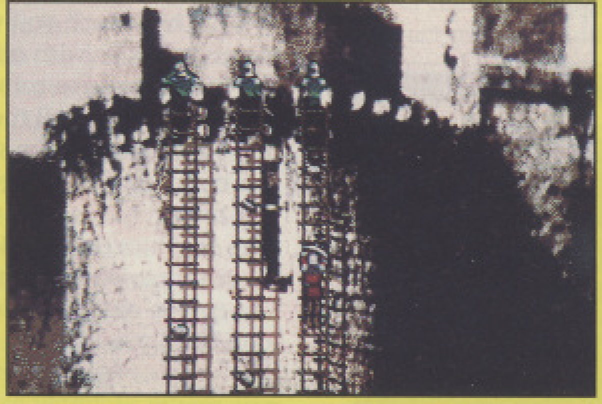
Points for: *Gives almost complete control, very fast, very versatile.*

Points against: *Lots to memorise, no Thesaurus, bit cramped on a 520, no disk format command.*

JOAN OF ARC

Joan of Arc is basically a Defender of the Crown clone from France. Fortunately for those who like that sort of game, both the arcade sequences and the underlying strategy elements are significantly better than DotC, but it retains some of the worst features of that program, namely the tedious pauses while it shows you pretty pictures or loads the next sequence, and the lack of balance between the arcade and strategy elements. The game needs both mouse and joystick. All selection is done with the mouse, but you have to use the joystick for most of the arcade games.





It is May, 1429. You are Charles, the Dauphin of France, soon, hopefully, to be Charles the VIIth, King of France. The main screen shows a map of France, indicating which provinces belong to the French and the English, and also those belonging to Burgundy and Brittany, both of which are rebelling. Your objective is to turn the whole map blue.

Selecting one of the two prime icons gives you a map showing the weather and another showing how friendly the French provinces are to you. The other prime icon brings up a menu of seven options. Once you have been crowned you can use all of these. For the moment you have just one small army led by Joan so you select 'Start a Campaign' and head for Orleans. The instructions are atrocious, you actually need to select 'Displacement', point at Joan's flag, point at Joan's name, and point at your destination. None of that is in the instructions! This is further complicated by the fact that often it will display a large box with a message in it. If you press the mouse button to get rid of the box, you will discover that you have also unintentionally selected a province as well - use the joystick button to get rid of boxes!

Once you have moved to an enemy province you can start attacking towns, for each town you have to play two joystick-driven arcade games, first hack your way past enemy soldiers to cross a drawbridge and enter the town (you can hack in three directions with your sword), then scale the ladders to reach the battlements - you can climb, jump sideways, or raise your shield to avoid falling rocks, but the boiling oil is deadly!

The first problem with the arcade games is working out how to use the controls, the first two aren't too bad, but the other two are terrible. One involves you defending the tops of the ladders, with weird combinations of button and directions - at last I found a use for my StarTrak button joystick! The other is one-on-one mounted combat where the instructions are completely wrong: attack is push, slash is pull, charge is pull and keep pulling, and left and right both turn you and make you ride - you don't need to keep pointing left or right - five errors in one paragraph!

The second problem is the pauses - once you have crossed the drawbridge you get to watch little men run across for 20 seconds then wait for a 30 second load, it may only take you 5 seconds to climb the battlements, then another 20 seconds of little men climbing up walls, followed by another 30 second load - you can't suppress any of it - you have to watch the little men - and there are a lot of towns to capture!

The third problem is the difficulty level - none of the arcade sequences are all that difficult once you have mastered them, but when you do lose one you can never be quite certain whether it is because you have insufficient skill, too small an army, or just some unlucky 'dice throws' by the computer.

You will also meet enemy armies in the open - here you get another little game to play, mouse-driven this time. The battlefield is displayed with a row of icons beneath it to allow you to command your archers to fire or move left or right, your troops to move left or right, your cavalry to charge, or your bombardiers to raise, lower or fire their cannons. The terrain and weather varies, the armies are shown as scores of tiny stick men marching or riding over the plain, and the bombs and arrows fly overhead most realistically - good fun to play, but again difficult to tell how much of your success is due to skill and how much to superior numbers or luck.

Once you have freed Orleans and Rheims you get crowned and can start to use all the other options: Diplomacy (Armistice, Peace Treaty, Alliance, Buying towns, Ransoming Prisoners - an excellent source of income), Espionage (spying out Garrisons or Armies), Helping Hand (Assassination or Kidnapping - you have a number of nasty pieces of work in your employ!), Taxation (both yearly tithes and special taxes - watch out though they have them the wrong way round on the menu!), Royal Justice (Arrest, Pardon, or Execution), and Raising of the Royal Armies.

The concept is great, the implementation not so good in places. Some of the selections require numerous choices, for example if you are trying to ransom one of your prisoners back to the enemy, you need to select an enemy to negotiate with, a prisoner, a ransom amount, a location for the negotiations, and two ambassadors. Although this gives the game a lot of depth, it takes a long time to select (about one and a half minutes, mainly because of the superb graphics it insists on displaying EVERY time), there is no way to cancel anything if you make a mistake (this applies to the whole game!), and, should you be rejected, there is no indication of why you failed - did you ask for too much, or maybe you sent the wrong ambassador, or was it just the town you chose for the negotiations? The lack of feedback makes you wonder what the point of a lot of it is. Fortunately there is a nice speedy save/restore facility so you can recover from your mistakes!

Despite all theses niggles, the game does have quite a lot to it. The graphics are superb throughout and there is plenty of variety - you can even get your mother-in-law beheaded for witchcraft if you like - complete with gory full-screen animated graphics!

If you like the combination of strategy and arcade game and are of a temperament such that you don't get too upset by having to watch coins fall into a box for 45 seconds every time you collect taxes (and I thought watching paint dry was boring!) then Joan of Arc is certainly worth looking at. I much preferred it to Defender of the Crown, and if they ever actually bother to play test one of these games with real people, then one day we may get a superb game of this genre - how can a game of this depth not have a PAUSE button?

Created by Chip/Softgold/GO!/U.S. GOLD

Priced at £19.99

Reviewed by John Sweeney

1. Just what is MIDI?

A new series in which John S Davison shows that you don't need to be a professional musician to enjoy making music with your Atari

Anyone interested in popular music can't have failed to notice the impact of computer technology over the last few years. Electronic musical instruments use similar hardware technology to computers, and it was inevitable that computers would eventually be incorporated as a music making aid. Two major events helped make this possible. One was the advent of MIDI, the Musical Instrument Digital Interface. The other was the arrival of the Atari ST, which came ready equipped to exploit it.

Before 1983 each electronic instrument manufacturer tended to use his own pet method of internally controlling and externally interconnecting his keyboards and sound sources. This was fine if all your gear came from one manufacturer, but posed problems if it didn't. And it usually didn't!

To complicate the issue, many of the early electronic instruments were 'monophonic', i.e. could only sound one note at a time (like a clarinet, for instance). 'Polyphonic' sound with two or more notes sounding simultaneously (like a piano, for example) required a separate sound source for each note, and separate keyboards to play them. The result was often a heap of equipment interconnected by a spaghetti-like mass of cabling, which the poor musician needed six hands to play and a degree in electrical engineering to understand.

KEYBOARDS AND SYNTHESISERS

Today, the term keyboard generically describes anything having a piano-style key layout. As well as piano keys electronic keyboards also normally have a plethora of control buttons, wheels, and switches to activate various functions. Usually, but not always, there's a sound source built into the same case. Often there's a built-in amplifier, speaker, and various automatic chord and rhythm features too, making it a completely self contained instrument well suited to home use - hence the term 'home keyboard'. Good keyboards also have the all important MIDI ports.

A sound source is a means of electronically creating sound and is usually known as a synthesiser. It may be built into a keyboard or exist as a separate unit, when it's known as an 'expander' or 'rack mount' module, connecting to a keyboard via its MIDI ports. A true 'synth' allows you to custom build sounds to your own specifications. These are usually known as 'patches' and have to be programmed into the synth, often an arduous task involving manipulation of dozens of parameters. Other forms of sound source include various types of 'pre-set' sound generators designed to provide a fixed range of specific sounds, or 'timbres', usually push-button selectable. Modern synths usually include many such pre-sets in addition to synthesis features.



One of several low cost MIDI keyboards available

THE BIRTH OF MIDI

In 1983 the major manufacturers collaborated in the design of a standard interface and communications protocol for electronic musical instruments. The aim was to simplify interconnection and provide standard control messages which suitably equipped instruments could send to each other and act upon. In simple terms it allowed you to play anybody's sound source from anybody else's keyboard. Each manufacturer could still use unique INTERNAL design for his instruments, but EXTERNAL communication would conform to the new standard.

To keep the link simple and inexpensive they based it on a shielded twisted-pair cable terminating in 180-degree five pin DIN plugs (as found on many hi-fi systems). When used with a serial digital interface this approach allowed many different control messages to be transmitted via the same cable connection. Previously, each cable had usually been dedicated to a specific control function.

Polyphonic operation was a prime requirement, so the link had to be fast enough to play musical chords, achieved by rapidly transmitting the individual notes of the chord in sequence. For the technically minded the agreed standard specified a 5mA current loop to communicate asynchronously at 31.25 kilobits/sec using one start, one stop, and eight data bits.

Another requirement was for 'multi-timbral' operation, that is, polyphonic sound with each note potentially having a different timbre, to sound like a group of different instruments playing together. This was implemented via sixteen MIDI 'channels', each capable of handling a separate timbre. A sound source can be set to respond to messages for a given channel and to ignore others. This allows the musician to selectively play a particular sound source in an interconnected group, or to play several sound sources simultaneously from one keyboard.

MIDI MESSAGES

MIDI keyboards don't simply activate switches to turn sounds on and off. They generate short (usually three bytes or less) digital control messages which are then transmitted to and acted upon

by John S Davison

by other components of the MIDI system. These components could include the keyboard's own built-in sound source, or external sound sources linked to the keyboard via MIDI ports, which we'll hear about shortly.

The most fundamental messages are Note On and Note Off. Press a key and a Note On message is sent. It contains the note number, velocity value, and channel number. Note number tells the sound source the pitch of the note to be played, while velocity value specifies how loud it should sound. Pitch range is 128 semitones (10+ octaves), each semitone corresponding to a note number. The note is played by any attached sound source set to respond to messages with that channel number. It sounds until you release the key, when a Note Off message is sent to silence it.

The next most important MIDI message is Program Change. This causes the sound source to switch between any of 128 'programs' on a given channel, where a program is usually a pre-set timbre or your own custom designed patch. It's generated by pressing a selector button on the keyboard.

Other common messages include those created by various keyboard controllers, the most common of which is the 'pitch bend' wheel used for varying the pitch of a note around its nominal value. Then there's the 'modulation' wheel, used for varying some other aspect of the sound such as amount of vibrato. Some keyboards also have 'aftertouch' capability and send messages relating to further pressure applied to keys after their initial depression. This can be used to trigger additional effects.

There are also System messages, which affect the system operation as a whole rather than specific notes, channels, or controllers. Prominent amongst these is the System Exclusive message, which provides a way for manufacturers to implement their own extensions to the basic MIDI standard. It's also a means of saving and loading patch data for your custom built sounds, either to/from other compatible MIDI equipped musical instruments or storage/editing devices such as computers.

MIDI PORTS

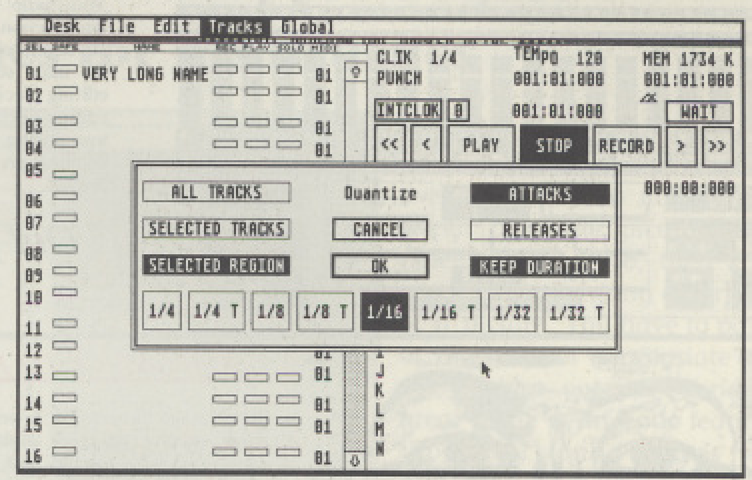
Messages are passed between interconnected components of a MIDI system via the MIDI ports, of which there are three types: **MIDI IN**, **MIDI OUT**, and **MIDI THRU**. You may find one, two, or all three of them on MIDI equipment, depending on its function.

MIDI IN accepts MIDI messages from elsewhere, so you'll find it on anything capable of reacting to MIDI messages, such as synthesisers, drum machines, and computers. It connects to the MIDI OUT (or sometimes THRU) port of other equipment.

MIDI OUT makes MIDI messages available to the outside world, so is found on equipment capable of generating them, such as keyboards and computers. MIDI OUT connects to the MIDI IN port of other equipment.

MIDI THRU provides a 'through connection' for 'daisy chaining' together several pieces of MIDI equipment. It works in conjunction with the MIDI IN port, providing a duplicate of the messages input there. By connecting the MIDI THRU of one sound source to the MIDI IN of another, MIDI messages from a single keyboard or computer can be presented to several sound sources at once. If each is set to respond to different channels you can selectively play sounds from any of them by changing the channel numbers the keyboard transmits on.

The ST appears to have only IN and OUT ports, but in fact it has all three. The OUT socket is actually a non-standard combined OUT and THRU, but don't ask me why! If you really need THRU, it's available on pins 1 and 3 (the outermost connections) of the OUT socket.



One of dozens of MIDI related public domain programs

ENTER THE ST

So far we've really only talked about communication between keyboards and sound sources. The beauty of MIDI is that communication can extend beyond these to include other devices capable of handling MIDI messages, the most important being the computer. Those ST MIDI ports are similar to any other I/O port in that a program running in the ST can write/read data via them in the form of MIDI messages.

If you connect a keyboard's MIDI OUT to the ST's MIDI IN, then the MIDI message sequence generated by playing the keyboard may be read and stored by a suitable program in the ST. If the ST's MIDI OUT is connected to a sound source's MIDI IN and the same message sequence sent to it, then the sound source will behave EXACTLY as though the sequence had come directly from the keyboard.

The ST acts like a tape recorder, but instead of reproducing a copy of the sound, it RECREATES the sound on the instrument which originally produced it. The stored MIDI messages can also be written to disk if required, for replay at any future time. This is the basis of the software 'sequencer', a fundamental part of any computer based MIDI system.

GETTING STARTED

To get started with MIDI you'll need a minimum of the following: an ST; a suitable sequencer program; a home keyboard equipped with MIDI IN and OUT ports and two MIDI leads. The home keyboard provides both the piano keyboard and sound source, and allows you to hear what you're playing through its built-in amplification system.

Actually, the ST isn't mandatory. There's a MIDI interface and sequencer software available for the 8-bit machines from Audio Visual Research (previously Two-Bit Systems). I hope to have more details of this in the next issue, when I'll be covering the musical hardware aspects of MIDI systems. Also included will be details of the best low cost keyboards I've come across for the MIDI beginner - the fantastic Yamaha PSS480 and PSS680 home keyboards.

Until next time I hope that your understanding of the combination of keyboard and computer has been enhanced a little and when you read about specific keyboards next issue, maybe you will be tempted to get your computer to start playing music in your own home.

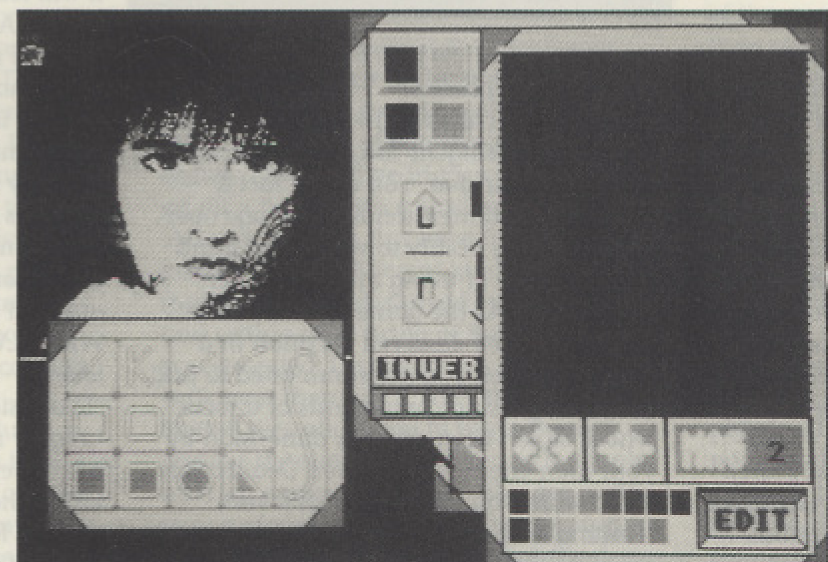
Designing with

FLAIR

Another paint program? Will it topple Degas? John S Davison reaches for his brushes

Another ST paint program? Yes, but this one's aimed primarily at the user needing high quality pictures for use in desktop publishing applications, although it could be used as a general paint program if required. It runs in low resolution colour or monochrome, and while it works in 512K you may need one megabyte or more to fully exploit its capabilities.

The package contains two single sided disks, one for program code and GDOS, the other for GDOS fonts, printer drivers, and three sample pictures. The 85 page spiral bound manual is a little weak on some topics, like GDOS for example, which hardly gets a mention.



PAINT ON A CANVAS

There are two major features which differentiate Flair from other paint packages. The first is its ability to create 'canvases larger than screen size. This enables you to produce a picture sized to match the resolution of your printer. For instance, if your ST had enough memory (2MB) you could create a massive canvas to take an A4 size picture at 300 dpi (that's about 2500 X 3500 pixels!) for printing on a laser printer - with every pixel editable by scrolling the canvas through the screen window.

The second feature is that Flair can operate as a GEM desktop accessory alongside a suitable GEM based desktop publishing program (again, memory permitting). The user is then able to quickly flip from DTP page composition into Flair to create/edit a picture and back again. Obviously, the two programs have to use compatible picture file formats, but Flair should work with most DTP programs as it handles DEGAS (uncompressed), Neochrome, and Art Director file formats in addition to its own.

Another unusual feature is its real-time display of graphical transformations. You control the amount of rotation, resizing, shearing, and mirroring applied to an area of the picture by moving the mouse and watching the transformation happen on the screen. When you see the effect you want, you capture it with a click of the mouse. It responds reasonably quickly unless you're working with large chunks of the picture, when response becomes slower and control more difficult.

INTERNAL ACCESSORIES

Flair is also supplied with its own 'accessories' including a notepad, clock, control panel, and calendar, plus an optional RAMdisk and printer spooler if you have the memory to spare. These are internal features of the program and can't be used elsewhere like normal accessories.

On the functional front it's got most of the drawing, painting, and editing facilities found in other good paint programs, plus a few more besides. These include the ability to draw arcs and smooth Bezier curves; lines of selectable thickness with square, rounded, or arrowed ends; and a useful selection of colour fill operations. These perform such things as fill to a boundary colour, fill all areas except those in selected colours, and to swap and selectively replace colours.

There are nice features for defining your own brushes and fill patterns, including a 'snapshot' function which turns any part of the screen into a pattern. Selective painting is possible, where the new colour will only 'take' over areas of selected colours, and the variable rate airbrush sprays in patterns as well as solid colour. It has a good grid-lock system, and there's an excellent variable power magnify feature for really detailed work .... but stop! There's just not space here to cover everything.

Flair's designers did miss a few features. For instance, you can load several pictures onto one canvas, but can only use one 16 colour palette between them - no flipping between alternate pictures and palettes here. Also, there's no quick way of erasing all or part of a picture. You have to paint or fill with an appropriate colour to blot out the offending area. There is an Undo feature, though. I found Flair's file handling tiresome too. You can't get a complete disk directory listing, and it seems to take a lot of clicking and mousing around to get at the files you want. No animation or colour rotation facilities are provided, but they aren't really needed for DTP work.

TABLET DRIVEN

The program's functions are accessed through a system of 'tablets' - graphical menus which can be positioned anywhere on the screen. Despite AMS's claim, this system is by no means intuitive and I found myself referring to the manual rather more than I wished.

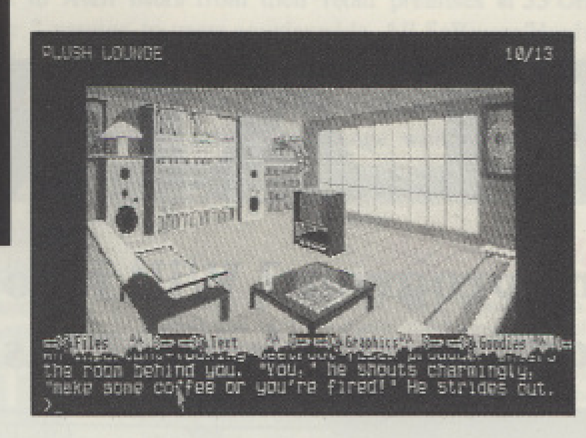
Flair is not without its problems, either. The canvas size redefinition process just wouldn't work on my elderly 512K 520STM, causing program crashes when using anything but a screen sized canvas. It worked perfectly on a friend's new 1040STFM, but memory shortage wasn't the problem. Operating system incompatibility, perhaps? Users of older machines beware!

Flair Paint is undoubtedly an innovative product and although possessing a few rough edges it could be of great interest to someone with specialised DTP/printing requirements. The typical home user, though, would probably be better served by one of the more general purpose paint programs such as Degas Elite, Art Director, or Spectrum 512. Think carefully about your requirements before buying. •

Title: Flair Paint
Publisher: Advanced Memory Systems
Price: £34.95

FISH!
Magnetic Scrolls/ Rainbird
ST £24.95

Reviewed by John Sweeney



I haven't had so much fun for ages! FISH! is probably the best adventure of 1988.

Basically it is a text adventure - you type in what you want to do and it responds with some text telling you what happened (and maybe a new picture - excellent graphics if you like that sort of thing). There are, as usual, lots of nice facilities to make playing easier: command editing, function key definition, fast save/restore to disk, variable textsize, mono screen support, etc. The packaging is good - background information, instructions, poster, hints, and a free One Week Travelcard for the Hydropolis Underground Omnibus Company! The parser and vocabulary are excellent, and it is full of enjoyable text - as long as you can stand all the fish jokes! But the game itself is what matters. It is truly superb - absolutely packed full of humour and puzzles.

The game is called FISH! because you ARE a fish. An intelligent fish, mind you, from another dimension. You are in fact a trainee inter-dimensional espionage operative with the ability to warp your mind into the body of living things in other dimensions. As the game starts you are enjoying a well-deserved vacation in a fish-bowl when you are summoned to find the three missing components of a focus wheel, stolen from another dimension by your arch-enemies, the Seven Deadly Fins (I did warn you about the fish jokes!).

Finding each of these components is a separate little adventure which gives you a relatively easy introduction to the game - you can tackle them in any order and they are not inter-related in any way. Once you have succeeded with all of them you get into the main game - now you warp into the body of a mer-man and must locate both your enemies and various devices you need in order to save this world from destruction.

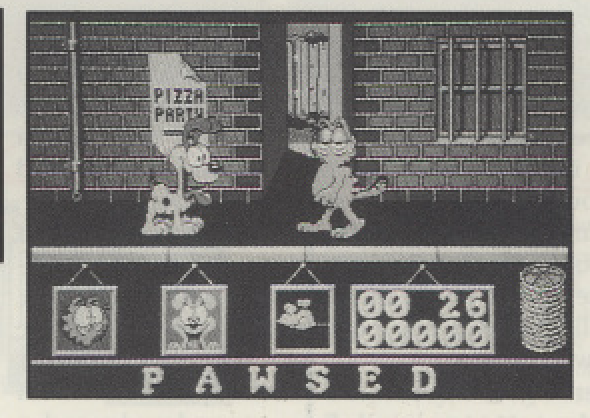
The Magnetic Scrollers have packed FISH! with superb puzzles, some fairly straightforward, others quite complex, but all highly logical and supported by plentiful clues. Try everything even if it seems to be wrong at the time - you never know where it will lead - these guys have devious minds! And they have been careful to think of most of the oddball ideas you might have, so that when you try them you get interesting results (usually humorous or misleading!) - even if it doesn't get you any nearer the solution!

There is one minor bug - the very last command in the game is fairly obvious, but unfortunately not programmed adequately - if you are stuck try ILA UHJXOD-WRU ZLWK VFUHZ (take 3 from each letter).

That aside, this is one of THE great games - highly recommended - watch out for the next one as well - ALICE IN WONDERLAND, hopefully in May. (I WAS going to tell you lots more about some of the puzzles and jokes and especially the 'maze' In The Dimensions - now that is WEIRD, but the editor says I am only allowed 500 words! Best game of the year and they limit you to 500 measly words!)

GARFIELD ..BIG, FAT, HAIRY DEAL
The Edge
£19.95

Reviewed by John S Davison



Disaster. It could only happen to a cat on a Monday, especially if his name is Garfield. Garfield's girlfriend Arlene has been captured by some unspeakably insensitive character and taken to the City Pound. This has had a miraculous effect on our fat feline friend - it's galvanized him into ACTION. Yes, the world's laziest cat is contemplating a rescue mission, and it's up to you to help him by guiding him through his comic strip world in search of his beloved.

The game takes the form of an arcade adventure, the layout being the Arbuckle household and garden, and the town in which it's situated. Scattered around this world in usual arcade adventure fashion are a number of objects, most of which will help Garfield in some way with his quest. The trick is to find the right use for each object. There aren't that many objects, so seasoned adventurers will find the game very easy.

You'll find several of your favourite characters from Garfield's world in this game. As well as Garfield himself you'll get to meet Odie, the world's most stupid dog, Nermal, the world's cutest kitten, and of course there's Arlene - when you eventually find her. Jon Arbuckle, Garfield's owner, appears very briefly in a couple of the games's locations.

As usual, Garfield gets hungry very quickly so you have to ensure he stays well fed. There are plenty of opportunities to eat, as his world is scattered with food of various kinds. Make sure you pander to his hunger pangs, as failure to do so eventually results in a Nap Attack when he'll suddenly fall flat on his face and go to sleep, holding up the action somewhat!

The game's strength is in its excellent graphics, looking as if they've come straight from the easel of Jim Davis, Garfield's creator. The backdrops are cleanly and colourfully drawn, the characters are unmistakable, looking exactly as you'd expect, and the animation of them is a delight to see. Many of Garfield's expressions and mannerisms are caught perfectly, such as the way he grins, or gobbles his food, or kicks Odie or Nermal around (an essential part of the game). Odie, too, lives up to expectations, slobbering and bouncing around doing his best to help Garfield (but often hindering him). And I found the way Nermal skitters back and forth across the screen really amusing.

The program's sound side isn't quite so good, consisting of a choice between continuous music or sound effects plus odd musical fanfares. The music is competently done but becomes monotonous quite quickly, while there aren't really enough sound effects if you turn the music off.

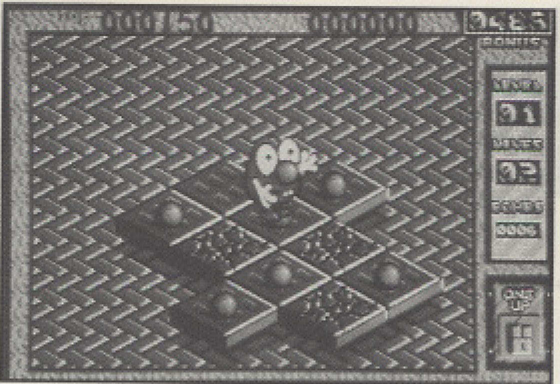
Overall, I found the game amusing and entertaining. It's easy to complete so can't really be classed as good value for the serious gameplayer. Younger players and Garfield fans will love it, though.

BOMBUZAL
Imageworks
£19.95

Reviewed by Ron Stewart

When a program comes to me for review I usually give it a quick look over and then go back to my current favourite. This sequence of actions did not occur when Bombuzal turned up on my doorstep. From the first load I was hooked into solving the one hundred and twenty puzzles that the game presents. Each puzzle consists of a series of tiles laid out in differing patterns. On the tiles are Bombs. You are tasked with blowing up the Bombs, without getting yourself blown up. Easy? In concept, yes! In practice, No!

There are three sizes of bomb, plus a bomb that continuously changes its size as you play. Each size of Bomb has a different blast area and if there are any other Bombs within the blast area these will be triggered in a chain reaction. You can quite easily stand next to the smallest Bomb when it goes off. Stand next to any of the others and you get yourself blown up. Part of the puzzle is that the larger Bombs must be set off by the smaller Bombs. Another variation on the bomb theme is the use of bombs with satellite dishes. These will be triggered when you set off a bomb with a similar dish.



Also included in this most fiendish of puzzles are the different kinds of tiles. Normal tiles will be destroyed by the Bombs and setting off a string of Bombs can leave you stranded. Dissolver tiles allow you to walk over them once, then they disappear. Slotted tiles allow you to move Bombs around the slots. Riveted tiles will remain after an explosion and ice tiles are a slippery surface on which you cannot stop. These are the basic features, but the designers did not stop there. Other features have been added to the tiles. These include teleport devices and switches which will change the game by adding or destroying tiles and features. On some levels you will come across two droids, Bubble and Squeek, that you can use to your advantage to remotely detonate Bombs. Beware of Sinister and Dexter though. They are out to get you so you have to avoid them, blow them up or isolate them on a tile.

You can see then that with all these possible combinations, the puzzles can get very devious and complex. Because many of the puzzles take up an area greater than the screen, you can press the space bar and call up a map of the current level to help plan your strategy. The higher the level the more complex they become. You do not, however, have to go through all the levels every time you start the game. Every eight levels you are given a password that allows you to start from where you left off. If you loose all your lives you can also continue the game again from the current puzzle. Finally, just so that you don't get too bored with the game you can play in 2D or 3D viewpoints. The 3D viewpoint make the game play a little more difficult, but this is more than compensated for by the superb graphics. In fact, throughout this game the graphics are excellent.

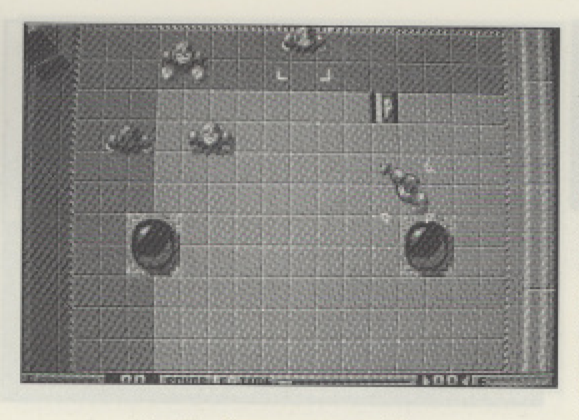
If you enjoy a good puzzle and like a little fun at the same time then Bombuzal is very highly recommended.

SPEEDBALL
Imageworks
£24.95

Reviewed by Damon Howarth

Images of James Caan went flashing through my mind as I unpackaged this game. The illustration on the box was almost a ringer for any Rollerball player ever seen and the concept is derived from the same source.

The idea of the game is to choose one of the three pre-designed teams and compete in either a league or cup tournament against either another player or the computer. Plenty of documentation is included to help the rookie choose his team and in this phase a little role playing can help the choice. There are no rules as to tackling and there is even the chance to bribe officials and opposing trainers in order to obtain an unfair advantage. When playing the computer this becomes very necessary since it plays a fast and mean game. The object of the game is to play a form of five a side handball, to rules that make American Football look soft, and on the way round the playing area obtain various bonus squares. These squares range from a monetary unit used to bribe and corrupt between games or immediate bonuses that vary between freezing the opposition to reversing their joystick control temporarily or even allowing you to automatically possess the ball.



'this one is a gem'

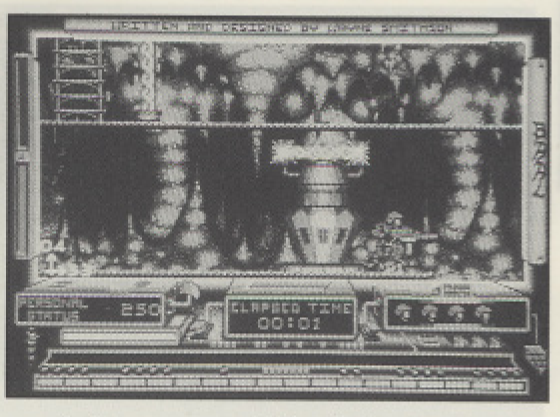
There is an option to play two handed and that presents a very absorbing and well balanced two player game. I believe that there are those who have set up their own leagues with this game, that could prove to be somewhat challenging and absorbing. The game even has a save option, although it is imperative you do not believe it's routine that reads "Please insert Data/Speedball disk, all non Speedball data will be destroyed". This is not true as I found to my horror after much playing when I saved a game to the Speedball disc only to discover that the process totally reformatted the disc leaving only a saved game position and no game to play it in. Imageworks will restore the disk for a charge of £3 but why on earth should you have to pay for a replacement when you only followed the instructions given?

The game is a Bitmap Brothers creation, that is the same people who created Xenon, and some echoes of that hit can be seen in the screens and naming of team captains. The whole package is colourful and responsive to the joystick even in two player mode with a great deal on screen, indeed in the beginning stages the computer may seem a trifle too fast for the neophyte. Do not let this deter you though, as a little practice enables some very close games to be held with the machine. In the realm of two player games really good playable ones are hard to find but this one is a gem.

This has pace, tactics, skill and all the joystick waggling anyone could desire and is well worth buying.

BAAL
Psygnosis
£24.95

Reviewed by Damon Howarth



'extremely atmospheric ... superbly drawn'

This new game from Psygnosis appears to have learnt quite a bit from previous games such as Barbarian. It is a platform and ladders style combat game, controlled by the joystick and suitable for one player. The hero is an archaeologist who has discovered that an evil demon has designs on world ending and therefore needs to go and stop him before we are all enslaved to Baal's will. The story comes in a booklet which also gives strong warnings about viruses and how to stop them spreading and also includes on its health warning "this game is tough".

The action takes place in three levels as you attempt to trace all the lost items of the artifact necessary to destroy the menace once and for all. The rather complicated screen informs the player of the grid reference and number of parts found so far. It is also necessary to find ammunition for the laser you carry in order to make it more powerful and thus deal with tougher creatures more effectively. Furthermore it is important to find rocket fuel and the rocket back packs to enable further exploration. The location of the land mines and the formidable monsters make progress dangerous and difficult,and the accompanying sound effects add a great deal of depth to the engrossing action.

The artwork of the backdrops and the sprites need special mention as they are extremely atmospheric and contain superbly drawn and coloured features. The monster sprites look horrific and their animation is surprisingly smooth. The sequence upon the death of a monster, in which its evil spirit rises to the heights is well done, and leaves the feeling of being in some hellish domain imprinted on the mind.

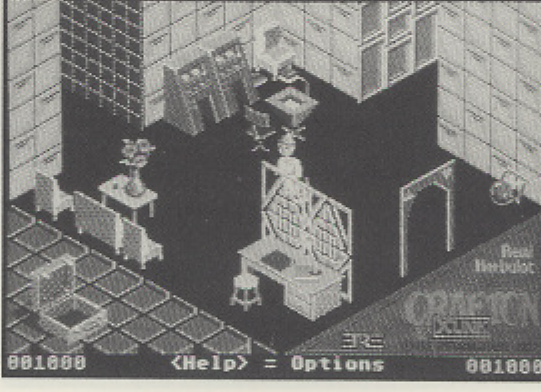
The game offers an addictive and exciting excursion into tactical platform and ladders warfare and provides a forum for some exciting graphics and sprite manipulation. The soundtrack which is also available on the loading screen is enjoyable and pleasant to the ear. I was most impressed with its save game facility for those ticklish times when mapping was dangerous and the lives left were dropping rapidly. As a small tip to any players the monsters do come back if the screen is left, so it is worth repeat trips to easy monsters to boost the score and obtain bonus lives. Oh yes! the major aim is to destroy all the generators with the laser, although the instructions do not actually say so.

The game comes with two disks with a detailed instruction manual and it appears to work with most versions of ST. I did, though, discover that it did not want to run on an upgraded new 520STFM. That is a 1 meg drive 520 with an additional half meg Ram implanted by the dealer, so beware it may not be totally compatible.

Baal comes well up to expectations and is well worth buying.

GET DEXTER
Mastertronic
£19.99

Reviewed by Ron Stewart



'I have got absolutely nowhere'

One of the first laws in reviewing is to play the game until you have a good working knowledge and can write fairly about the product. But there comes a time in the life of every reviewer when he has to admit defeat like a gentleman and say that a game has beaten him I have found my nemesis in a game called Get Dexter. I have played this game for hours and have got absolutely nowhere. Now this could be a combination of things. It could be that I'm a bit thick and I just cannot get the hang of the game. It could be that the instructions for the game are worse than useless. Or it could be that the game is just unplayable.

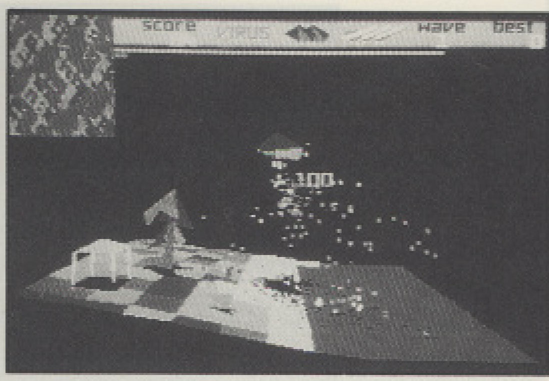
Get Dexter is a graphic adventure type game. Each scene is drawn in colourful isometric projection. You have control of Dexter. You have to find the chamber of Zarxas which apparently is a central control computer. To gain access to the computer you will first have to get an eight figure code. Each figure in the code is known to scientists located somewhere within the complex and the scientists have to questioned using objects you can pick up in your travels. To help in your task is a podocephale that goes by the name of Xunk. Don't bother reaching for the dictionary it's not there! I can tell you that it looks like a head perched on top of a foot. Where do they get them from? You now know as much as I do about the game for that is the limit of the instructions.

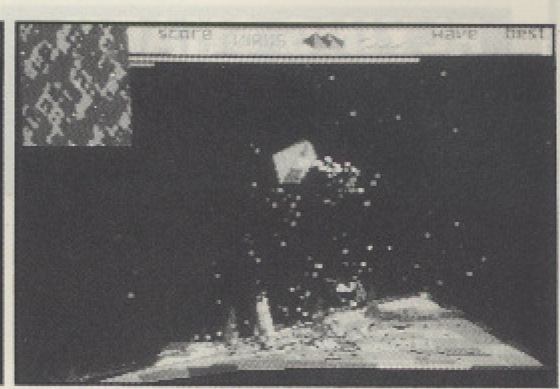
In essence you have to control Dexter around a series of three- dimensional rooms. Dexter can jump, pick-up or drop objects, although he can only carry one object at a time. Most of the items in a room can be moved, pushed or pulled. Dexter, who I assume is some sort of robot has an energy level. The energy level will decrease when he comes into contact with the many weird and wonderful creatures that inhabit the rooms. Each room appears to be a puzzle in itself. For instance, you want to get to that interesting object that is surrounded by broken glass? Then move some tables over the glass jump up on the tables and retrieve the object. There are many other things to work out as well. How do you open the sliding doors? What is the function of the coloured mats? How do you use the lift that gets you to the door that is suspended in space?

All in all, there is probably a fair game fighting to get out, it's just that you will have to persevere and fight to get in. A decent set of instructions would have helped enormously, but then making people find out for themselves was probably the programmers intention. try it if you want to show that you are cleverer than I am!

VIRUS
Firebird
£19.95

Reviewed by John Davison jnr





You are the pilot of the latest generation of Hoverplane, and have been given orders to defend your country against the oncoming waves of attacking enemy spacecraft. The attacking alien force is intent on polluting the landscape by spraying it with a horrific red virus.

Virus, which was initially seen as the game 'Zarch' on the Acorn Archimedes, has been long awaited in other computer formats, as it is considered to be an innovative piece of software. The action is set above a three dimensional landscape which smoothly scrolls by in whichever direction you pilot your hoverplane.

Control of the Hoverplane is with either the keyboard or a combination of mouse and keyboard. The craft must be tilted in such a way that the thruster on its underside can push it in the required direction. This is very difficult to master, and is made even more so by the fact that you have to compensate for inertia and gravity.

As you move around the colourful patchwork landscape you will come across many trees, lakes and other such things. You will also encounter a number of different alien space craft which must be destroyed. To aid you in your navigation of the land you are assisted by a radar display situated in the top left hand corner of the screen which, for me, did not really help. This was because I couldn't easily distinguish the coloured 'blips' indicating alien spacecraft from the green and blue background of the radar screen.

Graphically the game is very impressive. The patchwork ground scrolls by extremely smoothly and, if you move a great distance above the ground, the stars scroll by at different speeds giving an excellent three dimensional image. The space craft many ways of miniaturised versions of some of the craft in Elite. Many nice little features make the graphics just that bit better - for example there is a fixed light source and all shadows and highlights on objects in the game change in relation to it.

In terms of sound the game is not terribly good. The occasional blip and blurp seems to be the sum total of the sound effects, which is a pity as considering the high quality of everything else, it does let the side down considerably.

In conclusion I would say that as a feat of programming Virus is superb, however I found it absolutely impossible to play and could not get along with the controls at all, it looks like being a real challenge. Visually the game is spectacular and a lot of work has obviously gone into it, but I cannot help feeling that all this is wasted because of the sheer difficulty of control.

WHIRLIGIG
Firebird
£19.95

Reviewed by John Davison jnr



'a masterpiece ... visually spectacular... extremely playable'

Whirligig is a vast network of mini universes or 'eigenspaces' which are linked together by stargates. The Whirligig itself consists of over four billion eigenspaces, most of which contain a number of stargates which take you deeper into the Whirligig. Of the four billion or so sectors, there are five 'perfect' eigenspaces, or 'perfectspaces' which contain one of the five 'perfect solids'. These solids are the key to your ultimate success in the game.

Each of the solids has a form of 'attractor' field around it and if you manoeuvre into this field you can collect the solid and take it through the stargate. If you manage to find and capture all five of the solids, their combined power will create a timegate which takes you back to the golden age - 1988AD!!! Throughout the eigenspaces you will come across hundreds of different varieties of enemy spacecraft and also a variety of depots which will replenish your supplies of missiles, fuel, or chaff pods (defensive homing devices which destroy the nearest threat).

The screen is a multidirectional scrolling affair with your large ship situated in the centre. If required, a control panel showing supply level indicators and a sector map can be scrolled up from the bottom of the screen.

Control is via the mouse and is very simple to learn. Moving the mouse forwards causes the ship to move in the direc- this makes control much easier and is most convenient.

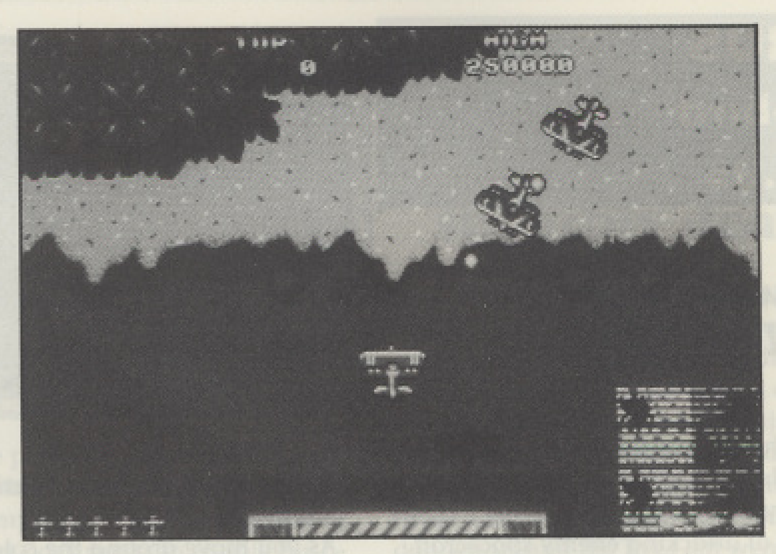
Graphically, the game is stunning. The objects and sprites on screen are all very large, colourful and amazingly solid looking. This 'solid' look is achieved by something known as 'Lightsource 3D', which shades all of the objects with reference to a fixed lightsource. The result is really magnificent and gives the game a look of extreme quality.

The sound is also very good. The continuous music, which can be switched off, is of excellent quality, being a memorable 'jolly' little tune which fits the game very well. The sound effects which are activated if the tune is turned off, consist mainly of feeble little explosions and gun shots. Although they are not that impressive they are adequate for the game.

In my opinion Whirligig is a masterpiece. It is visually spectacular, extremely playable, easy to control, and has a definite goal for you to strive for. I rate it as one of the few truly addictive games I have played recently, and can quite honestly say it is one of Firebird's best releases to date.

FLYING SHARK
Firebird
£24.95

Reviewed by John Davison jnr



Flying Shark is a conversion of the arcade coin-op by Taito. Basically it is a vertical scrolling shoot 'em up, very similar in style to the game '1942', which has been seen in the arcades and on various other home computer formats.

The scenario is fairly typical for this type of game. You, the great combat ace, must fly a lone mission behind enemy lines against overwhelming odds. Your aim is to win the battle and to ultimately save mankind. Its not exactly the most original story for a game, is it?

The game is for one player only and you control your biplane using the joystick for movement and machine gun fire, and the space bar to activate the 'smart' bombs.

The view of the proceedings, as in most games of this type, is from above with you looking down on the battle beneath. You will fight against the enemy guns, fighter planes and tanks over a variety of backdrops including jungle scenes, bridges, rivers, and the sea.

Various rewards are given for destroying certain 'waves' of enemy aircraft. For example, 1000 points are awarded for the destruction of a squadron of gold planes, extra fire power is given for destroying a red squadron and extra lives for a silver squadron. Extra 'smart' bombs can be collected by flying above a 'B' symbol.

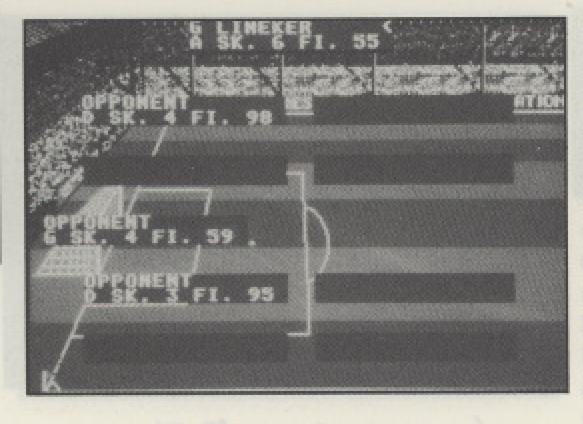
In play, Flying Shark is fairly addictive and easy to get to grips with. The controls react well which makes the manoeuvrability of your plane quite considerable. As mentioned above, pressing the space bar fires a 'smart' bomb which drops just in front of you and erupts into four spiralling fireballs which destroy anything in their path. This weapon must be used sparingly as you only have a limited supply, but they are very useful to get you out of a tight spot.

The graphics are of a high quality, being both bright and colourful and manage to catch the general feeling of the arcade original. The scrolling is smooth, although I did notice the very slightest judder at times. Animation of the various planes, tanks, and boats is also very good, being both fast and smooth. The background tune which plays throughout the game is catchy and of considerable quality.

Overall Flying Shark is an excellent arcade conversion and if you are a fan of this type of game and want to play at home I can highly recommend it.

FOOTBALL MANAGER 2
Addictive Games
£19.95

Reviewed by John S Davison



Ever wanted to try your hand at managing your favourite football team? Well now you can, as Kevin Toms' classic football management simulation has made it onto the ST at last.

As team manager you're responsible for producing a winning team and ensuring your club keeps a healthy bank balance. If you're good you could see your team rising to the top of the First Division, winning cups and championships on the way.

You start with £500,000,.sometimes more with sponsorships. This is used to pay players' wages, to cover club overheads, and to build up your squad by buying and selling players on the transfer market. You also get income from gate receipts; the more successful your team is, the more cash you get. Your bank balance is recalculated each week of the season based on these transactions - if it's negative you're sacked!

Before each match it's your job to pick the best team from your squad. This involves studying your players' attributes (position played, skill level, fitness level) and those of the opposition, matching your players' strengths against theirs and deciding the formation to play them in. It's also important to rest your players occasionally, so their fitness level doesn't drop low enough for them to be judged unfit to play.

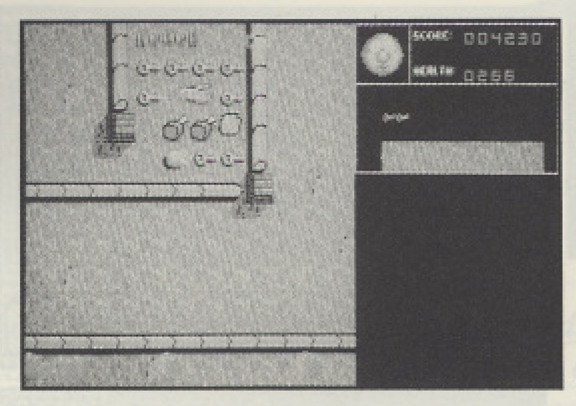
Once a match begins you have no direct control over play, although you can call in substitutes and change your playing formation at half time. You see the game as a series of animated action sequences, rather like edited highlights on TV. You watch from the stand as the players dash around the pitch, passing, lobbing, tackling, and shooting at goal. The outcome of each interaction between players is decided on the basis of relative skills plus a random element (representing luck?). A sequence continues until the ball goes out of play, the goalie saves a shot, or a goal is scored. Following a goal you're shown an action replay from a vantage point behind the net.

Graphics are nothing special, particularly the title screen and pitch backdrops, which are distinctly mediocre. There's no scrolling, the program switches between three separate screens depicting different parts of the pitch to keep up with the action. The player sprites (in team colours) are quite well animated, particularly the goalies who jig around in the goalmouth just like real goalies do.

Sound is the worst I've ever heard on the ST, consisting of just two different hissing noises representing crowd sounds, and a click heard as the ball is kicked. Shame on you, Mr. Toms - if ever a game cried out for sampled sound it's this one!

I'm no football fan, but I actually enjoyed this game despite its failings. As with all good simulations I soon found myself totally absorbed by it, and the desire to play just one more match was very strong. If it does this to me, then football enthusiasts should love it.

PUFFY'S SAGA
UbiSoft
£19.99



Reviewed by Damon Howarth

The presentation of this piece of Gallic software is colourful and cute, as is the underlying theme. A little ball (Puffy) has lost his girlfriend (Puffyn) in a dangerous maze-like castle full of power pills and mysterious treasures and monsters. Magic may be obtained therein to help the little ball on its way and the whole is joystick controlled.

There are no obvious instructions in the box except for a colour screenshot of the various monsters and goodies which inhabit the dungeon and no warning of the rather cute and innovative programming inside the game. The gameplay is, when stripped of its gloss, basically a Pacman/ Gauntlet mongrel and presents little more than original Gauntlet in challenge, but the gloss is what makes the game so appealing.

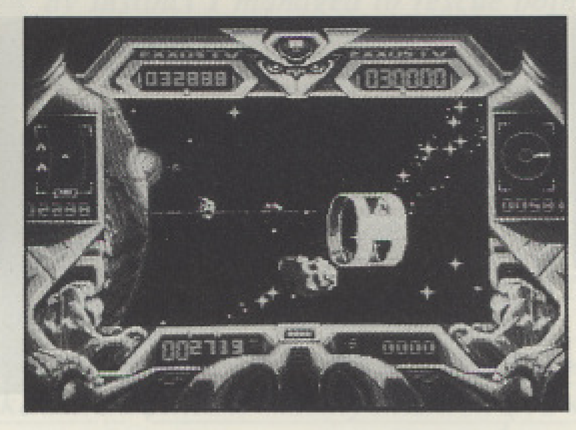
On start up the player has the choice of the male or female blob, which have differing attributes, that is the male is slow with a high hit and damage capacity while the female is swift but non violent. Whichever character is chosen a little "hello" emanates from the computer in sampled Franglais. This same voice adds helpful sound effects such as "yum-yum" whenever the food is eaten to "Ouch!" as damage is suffered by the hero(ine) and even offers helpful news such as "You will die!" as energy is depleting. Fearsome roars emanate from the monsters and the occasional blob-like giggle also reverberates through the maze as problems are overcome. This makes the game highly enjoyable at first glance and for the initial honeymoon period it seems extremely entertaining. Sadly it pales after long term playing. The whole experience is not dissimilar to the early talking Metros which at first were novel and subsequently somewhat wearing as they told you that the car was in excess of economic speed or whatever.

The action seems to expect that the player is aware of the Gauntlet style game and does depend on disappearing walls and hordes of early ghosts to weaken the characters. It is unfortunate that this only caters for single players as the combination of Puffy and Puffyn could have made a good co-operative game. Should the player wish to change role mid game then it takes one of the magic points that are collectable on route. The various magic functions do add something to playability and Offer a challenge to the imagination and deductive powers to discern what use any one piece of equipment or spell is.

The game is technically good coming on two disks in the boxed format and is compatible with all versions of ST that I tried it on. The colours are vivid and the gameplay normally more than adequate, although joystick responses became slower in busy screens.

On the whole I felt that this was a gimmicky game that is likely to sell well to impulse buyers or those who are happy to play only until the next new game comes along, I was not convinced that it had any lasting appeal.

PURPLE SATURN DAY
Exxos
£24.99



Reviewed by John R. Barnsley

This game was originally to have been called Art Attack, but it was apparently decided that this title may have led to confusion among the retailers, believing it to be a computer-generated art utility ..... which it certainly isn't!!

The game is a little strange at first and takes quite some time to comes to terms with. The basic scenario is that once a year, on the planet Saturn, a galactic Aurora Borealis occurs which turns the surrounding skies a shade of purple - hence the apt title. To celebrate this phenomenon, an annual mini-olympiad of four challenging 'sporting' events is held on the Purple Day between the best specimens of the various races that inhabit neighbouring planets. Only ONE of these 'races' is human, the others comprising weird and wonderful creatures, all with varying strengths and weaknesses that will influence your choice of opponent for each individual event. The gameplay is hectic and the accompanying graphics are superb! This software may seem daunting at first but persevere and you won't regret it!

One of the events, Ring Pursuit, involves a race around the rings of Saturn, avoiding meteors whilst quietly and efficiently nudging your opponent into their path - your task being to pass on the correct side of the orbiting satellites as you race around. Another event is Tronic Slider which is a type of energy-hunt based within the confines of an extra-terrestrial boxing ring which is itself festooned with a series of shimmering monoliths to dodge and scoot around.

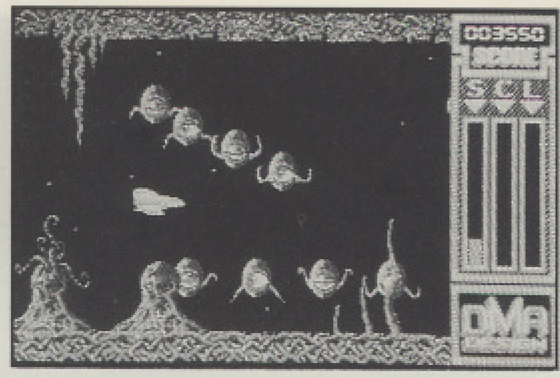
Time Jump has you attempting to catapult yourself the farthest distance/time into the future, while Brain Blower places you within an exploded brain with your objective being to fight and reactivate your particular cerebral hemisphere before your opponent activates his!!

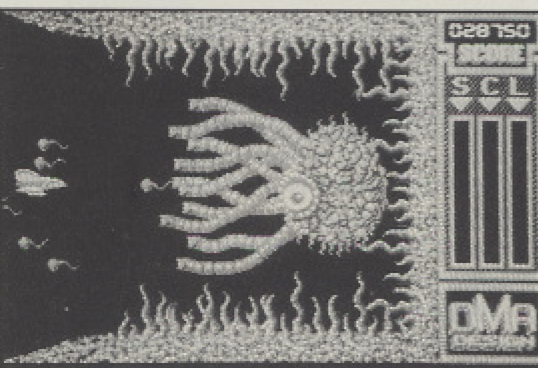
On the final screen, the overall winner of the tournament gets to sort of 'unite' (well it is French!!) with a beautiful female life form. The resultant offspring from this encounter appears on screen which you can then save to disk!

Purple Saturn Day may be loosely classified as a cross between Arcade/Simulation/ Strategy but that would bely the truly magnificent mixture of colour and intrigue, together with smooth and effective gameplay, that this package certainly is.

EXXOS is the new arm of ERE Informatique, the French software house which provided us with games such as Spidertronic and Macadam Bumper. As a point of interest, the name EXXOS has Greek roots - 'EXO' meaning OUT which is the opposite of 'ESO' signifying the internal and hidden! The choice of label title reflects the ultimate aim of the software producers which is total universal communication as seen in the first release on the EXXOS label - Captain Blood. A little bird tells me that the follow-up to Purple Saturn Saturn Day is provisionally titled Temple Of The Flying Saucers!!

MENACE
Psygnosis/ Psyclapse
£19.99





Reviewed by John Davison jnr

Menace is the latest release from Psygnosis, who are noted for their titles of extreme quality. Menace is no exception, as it is a truly stunning game.

Basically it is a horizontally scrolling shoot 'em up, similar in style to the arcade game 'Nemesis'. You must pilot a small fighter craft through the defences of the planet Draconia. On the planet you must navigate your way through various sections to destroy the most feared rulers in the galaxy. These rulers apparently ravaged and plundered space for many years and have been exiled from their home galaxy to the unnatural mutated planet of Draconia. You have been sent to avenge the deaths of those killed in the past by totally annihilating the planet.

Along your journey through the passages of Draconia you encounter many different alien lifeforms who are sent to attack you. If you manage to destroy a wave of these aliens you are presented with an icon, which, if shot at a number of times, cycles through a selection of different weapons and features. These items, which can be picked up by flying the ship over the icon, include lasers, cannons, shields, 'outriders' and a 'speed up' feature which enables your craft to manoeuvre with greater ease and speed.

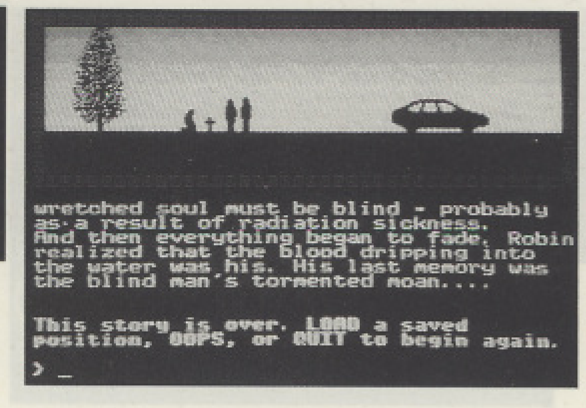
To complete a level of the game, the enormous creature or spacecraft found at the end of the level must be destroyed by shooting it a great number of times. Whilst attempting to do this you are utterly bombarded with enemy fire.

As you would expect from Psygnosis the graphics in Menace are absolutely superb. They are very colourful and would pass in an arcade! The end of level sequences with the large enemy creatures are especially impressive. The animation of your craft and the alien creatures is extremely smooth, as is the scrolling, which although very slow is of a very high standard.

Music and sounds within the game are also very good. The continuous tune throughout the game (which can be switched off if required) is pleasing to the ear and very catchy. Sound effects are few and far between because of the presence of the music, however there is a certain amount of digitised speech which informs you in a very smooth calm voice of oncoming danger and of the weapon which you have just picked up.

Overall, Menace is a superb game which is impressively presented. The graphics are beautifully drawn and the sound is extremely good. Menace also excels in terms of playability. It is a highly addictive game with enough variety for you to keep wanting to come back for more. It is definitely the best game to come from Psygnosis since Barbarian.

MINDFIGHTER
Abstract Concepts/ Activision
£24.99



Reviewed by John Sweeney

Mindfighter follows the adventures of an eleven-year old boy whose amazing psychic powers have resulted in his mind being trapped in a nightmare vision of the future - lost in the ruins of Southampton after a nuclear war has devastated the world. You must first survive long enough to gather sufficient information about what has happened to enable you to change the future, then find a way to return to the present so that you can use the information.

The game is a text adventure with pictures which comes nicely packaged with a poster and a 150-page novel of the same title. It starts well enough and appears to have great promise: the moody pictures and detailed text set the scene of a post-holocaust future very well. As you wander the ruined streets of Southampton various grisly events occur - "Slowly, with a blunt knife, the guard began to saw the man's hand off"! - and you start to encounter various problems - how to survive noxious vapours and attacks from enemy guards, how to get through the electric fence or get past the guards to the ship.

Unfortunately things don't go well from there. The 'advanced parser' isn't very advanced and the vocabulary is rather limited. Most sentences get the standard, boring response THAT WASN'T POSSIBLE. Mindfighter understands very few of the words it uses in its descriptions, but you must try all of them since occasionally there IS one you have to use. For example after trying EXAMINE RUBBLE in eight different places and being told ROBIN COULDN'T EXAMINE THAT you might be forgiven for believing that it was not valid - wrong! - you can EXAMINE RUBBLE in one location (but only once!) to discover something!

More problems occur when you solve a problem and try to tell the game what you want to do - at one point I had to try eight different ways of typing in the solution before I found one that it understood.

Then there is the book. If you read it first then it gives rather too much away. But if you DON'T read it you will not be able to solve some of the puzzles! For example, to pass the fence you need one of Robin's psychic powers, but there is no way you can guess what it is without reading the book. Even then your chance of working out exactly how to invoke the power is virtually zero. Stuck? Try LQKDOH. KROG. HAKDOH. PHWDPRUSK HDJOH (take 3 off each letter and don't drink any water!).

The game runs from memory so response times are very good. But it was written for a number of machines and herein lies a major part of the problem: the conversion to the ST was done by people outside the author's control and was not to his liking, furthermore the testing was completely inadequate and they are "planning to shoot the play testers". Abstract Concepts are hoping to rectify this with their next adventure - Parisian Knights.



- AS SOON AS I PRESSED THE MOUSE BUTTON I KNEW I HAD TROUBLE - a pair of HASSLERS appeared promptly and slammed in to me. One life gone and little to show.

*To show who was in charge I accelerated towards the descending LANDERS and wrote several of them off - then came the cry for help - a LLAMA had been nabbed by one. Of course it was far off, on the edge of the SCANNER - I accelerated towards it, ducking and weaving and luckily destroying an HACD** on the way. When I got there I carefully shot the lander, caught the llama and put it down on the surface, protecting myself with a dab of SHIELD.*

No relief - I had run into a bunch of seeded mines and an NPB was right ahead. I punched CONTROL for the SMART BOMB but too late, second ship gone.*

My survival into the next wave was in doubt - time to Sharpen Up! As my third ship rezzed in, a MUTANT and a couple of HOVERDRONES appeared - this time the SMART did its stuff. I had a second to breathe, study the Scanner and decide where the most urgent threat was.

ANDES ATTACK - DEFEND OR DIE!

Then, two more cries for help, nearer this time and close together. Flying now by instinct I managed to rescue both llamas at once. Wonderful - until the MOTHER SHIP zapped me. They fell to their deaths, from a great height. Six more to die and we'd lose the planet and plunge into a fight in Deep Space.

No time to worry - two SPORES appeared right ahead - a second Smart saw them off. The next few secs were pretty productive - suddenly the Scanner began to clear but what was this - something coming at me FAST! Turned out to be a KUSSTOM BLYTTER and it didn't like me. I trashed it with my shield on an a well-aimed blast, and so into the next wave six of my llamas intact.

* 'Have a Crummy Day' – Mine Seeder
** 'Nasty Pulsating Blob'

ANDES ATTACK and GRIDRUNNER, soon!
for the ATARI ST £9.95
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TIME ON HERO

John Sweeney explores two new F

With the tremendous success of Dungeonmaster last year, there has been an upsurge in arcade style versions of Fantasy Role Playing variants. Both SSI and Origin have produced many successful FRP games over the years, notably the Wizard's Crown series and the Phantasie series from SSI and the Ultima series from Origin, so it is not surprising to find them both putting out new FRP-style games, but with simple joystick controls and lots of arcade-style fights to try and entice more gamesplayers into sampling the delights of FRP.

The games have a number of similarities: you need to explore your surroundings - but don't need to map very much of it; you have to fight your way around - arcade style; there are items to find and use; if you press the space bar you get access to a menu for extra commands such as casting spells and using items - in Heroes it is a text menu across the middle of the screen, in Times it is icons along the bottom of the screen; and to win you must fulfil a quest. In Heroes the quest is to kill a Dragon and retrieve the treasure it is guarding; Times is more subtle, you will be given quests along the way and don't discover your true objective until well into the game.

So how do they differ? The first obvious difference is the viewpoint. In Heroes you get a cutaway view of the corridor or tunnel you are in and a side view of your current hero, in Times you get a Gauntlet-style overhead view of your character's head.

The second obvious difference is in the fighting. In Times you just face the right way and press the button - a few blows kills just about anything, in Heroes you get rather more options. Heroes has two modes of fighting - Ranged Combat and Close Combat. Once you get within a quarter of a screen width of any enemy you are automatically placed in Close Combat mode which, provided you keep the button pressed, allows you to thrust (high, centre or low), dodge or back away; releasing the button allows you to run! If you are further away you are in Ranged Combat mode and if the character you are currently using has a ranged weapon - bow and arrow, spear, magic staff, etc. - then you can use the joystick to attack with it, aiming high, low or centre.

You start Times of Lore by choosing whether you want to be a Knight, a Valkyrie or a Barbarian and stay as that one character for the whole game. To begin with you have a sword and can only hack monsters from close up - later you may find a couple of better weapons - your best weapon is automatically thrown if you press the button while you are outside close combat range.

In Heroes you have eight characters from the Dragonlance books in your party, each with different abilities and weapons, but, apart from using the space bar to call up a menu and get one of the other characters to cast a spell, only the current leader can actually fight. The graphics are superb as your chosen leader leaps or glides across the screen, weapon swinging and cloak flying, and with so much choice in the character and associated weaponry this aspect of the game is truly excellent.

In both games spells may be cast at any time. In Heroes, Goldmoon and Raistlin both have magic. Goldmoon has a choice of nine Clerical Spells ranging from Cure Light Wounds (costs one point of energy) to Deflect Dragon Breath (costing ten) which she can cast with her Blue Crystal Staff. The staff starts with around 165 points of energy and is recharged whenever an enemy magic user is throwing spells at the party (she doesn't need to be the leader). Raistlin has a choice of eight spells such as Charm, Magic Missile and Detect Invisible using his non-rechargeable Staff of Magius - well seven actually, Final Strike always kills the party, not a lot of use!. Apparently it was intended as some sort of joke, I didn't find it very funny!

In Times, you have to find scrolls in order to cast spells and since you are not very good at reading arcane script you have to deduce their effects by observation - so I won't spoil your fun by telling you what they do!

Superficially, Heroes of the Lance would appear to be a far superior game, having very impressive graphics and a much wider range of fighting and spells, however, if you actually play the games for more than half an hour, you soon find that the difference is indeed superficial. Heroes seems to me to be a superb new games-system (albeit with a few rough edges!) looking for a game! Times on the other hand is a complete game with lots of subquests to hold your interest.

The fighting in both games soon starts to pall. In Times, I found it a trifle simplistic - but then it is an arcade game. In Heroes, once you have learnt a few basic techniques, like how far away from an enemy you have to be to hit it with your sword, and which monsters you should Sleep, Web or Charm at once, there is not much that can stand up to your party - even the Wraith (second most valuable in points terms) just stands there and lets you hack it to pieces without any danger to your party! Once you have discovered an effective way to deal with a particular monster it always works - the only challenge comes when they attack in groups, but then you just take a bit of damage and heal up afterwards.

As for finding and using items in Heroes, it just isn't worth the bother. Treasures are practically worthless - the best I found was only worth 50 points - kill one harmless Wraith and you get 575! New weapons can't be used! Rings and Strength Potions had little discernible effect. And you can't search the whole place for Invisible items because Raistlin doesn't have enough energy.

Heroes is also disappointingly short. After exploring the

HEROES OF THE LANCE
SSI/U.S. Gold
ST only - £24.95

NLY FOR ROES



o new Fantasy Role Playing games

multiple dungeons of a Phantasie, the multi-level dungeon of DungeonMaster, or the multiple, multi-level dungeons of an Ultima, I was most surprised to meet the Dragon on the second level in Heroes of the Lance! Admittedly there is at least one other route down there, but I still thought it rather a small dungeon for the price. I had just mastered the games-system and was looking forward to playing the game when it came to an end! The game is rather unbalanced and your characters much too powerful - you can actually complete the whole game using only two of your characters, without picking up any items, in less than fifteen minutes! The only hard bit is working out the one and only exact way of killing the Dragon - a slight bug at this point allows you to get past her head and stand unscathed between her head and body while she breathes flame into empty space - if you get there, be sure to turn around as her body is invulnerable!

There are lots of little things wrong, some of them probably intentional in order to provide a simple arcade game, but they are nonetheless annoying. You can't tell whether or not you have succeeded in casting spells such as Prayer (nor what effect it has!), or how much power you have left in your staffs, or whether shields have any use, or how many arrows you have left, or which scroll is which and so on.

Heroes of the Lance is fun to play and has great graphics, but is definitely an introductory game - and as such I believe rather overpriced. Just in case you are after a high score, here are the points (I really don't understand an 'arcade' game where it is almost impossible to work out where the points come from!): Baaz 82; Troll 525; Spectral 120; Aghar 14; Spider 315; Bozak 175; Wraith 575; Aghar Lrg 28; Men 20; Hatchling 600; Khisanth 2000; Shield or Gem 10; Coins 20; Silver Chalice or Bar 30; Gold Chalice 40; Hunting Knife (use Detect Invisible just inside the first doorway), Gold Bar or Longsword 50; Disks 10,000! You also get 2000 points for each survivor. USEFUL TIP: once you have copied the diskettes, erase FORMAT.TOS from the one you are going to play with and you will have space to SAVE without changing disks. Even better, if you have a double-sided drive, format a diskette to two sides, with ten sectors per track and copy all the files from the B and C diskettes (except FORMAT-.TOS) to it. You can then play the whole game with NO disk changes!

Let's go back to Times of Lore. Although the fighting and spells are limited, this is a much better rounded game. You wake from a good night's rest and go downstairs to the bar for your breakfast beer. Here you encounter a Prior who asks you if you would seek out a gang of orcs in the Dark Forest who have stolen the Foretelling Stones. Being a hero you naturally agree and head off to the North. The land you are in is rather extensive, but fortunately the game comes complete with a map showing the major roads, rivers, deserts, mountains and buildings. You will need to make notes as you find your way through the forests, locate ruins deep in the desert, search for the buildings NOT shown on the map and explore a couple of small dungeons, but detailed map making skills are not required.

Unlike Heroes, where they apply the simple philosophy of 'if it moves kill it', in Times you can and must converse with the locals. This is done using the joystick to select keywords from a list maintained by the computer, based on what you have heard during previous conversations. As you complete quests and converse with the inhabitants you will be given new quests and hear strange rumours, most of which are well worth following up. (Just in case you get as frustrated as I did, ONE of the rumours is NOT true!) You need information and magical artefacts from various subquests in order to complete the game - around a dozen tasks in all - and you will also have to solve a few little puzzles, enough to keep you busy for some time.

The box actually says 200-300 hours of playing time. This is a gross overstatement. That is the sort of time it takes to play Ultima IV. Times of Lore is much shorter. I don't think I took more than about 20 or 30 hours. Some of the time is actually wasted by the response time on the icons - it can take up to 10 seconds just to select PAUSE from the menu! Why do programmers insist on building delays into their software? It can also take some time to get around, especially on the earlier versions. I had problems with the RETURN TO TIMES OF LORE option and with unwanted re-boots as I entered a pub to SAVE, so I got a new copy from Microprose and found that they had speeded up the character movement by around 30 or 40%. Once you find the Magic Boots the game then gets up to a reasonable speed. (If you want to know which version you have, check the dates of the files on the disk - my new copy has 1989 dates.)

It still has a few bugs (e.g. the dungeons may be deserted, and the LOAD GAME option doesn't appear to reset the luminance so that as night falls you end up with a completely black screen!) but not enough to spoil the game. I also got a little frustrated with the controls - it is far too easy to accidentally hold the button down a fraction too long as you leave a menu and then find that you have hit one of the locals unintentionally! This means that no-one will talk to you so you can't even SAVE your position because that requires you to talk to the landlord! If this happens you can either go to another town, or wait till midnight when, I am told, "the apathy flags are reset"!

Heroes of the Lance, with its connections to TSR's phenomenally successful Dragonlance and its excellent graphics will undoubtedly do well, but if you can't afford both I would choose Times of Lore as a more complete introduction to computer Fantasy Role Playing.

TIMES OF LORE
Origin/Microprose
ST only - £24.95

HEADCOACH

Do you need all the glitz and glamour currently surrounding the ST? Damon Howarth finds a thinking game where strategy is more important than looks

Superbowl has been and gone, the San Francisco 49ers are the new world champions having just beaten the Cincinatti Bengals and the Schoburg Franklins dropped out in the wild card game. Just a minute the Schoburg who?

This is not the world of Gridiron seen earlier this year but a computer management and play simulation produced by a small software house new to the ST but well known in BBC circles. Qualsoft produced the first version of Head Coach for the BBC some years ago and only on the realisation of the owners that 16 bit was taking off did they attempt the conversion. They started on soccer management games and then proceeded to use that expertise on a statistically correct Gridiron management system.

The game comes on two single sided disks with a manual giving full instructions and history of the initial forty-five team members. You take the part of the Head Coach of the Franklin Schoburgs a team taking over the franchise of one of the NFL teams and falling into their season's schedule. It is necessary for you to make all the decisions as to starting line up players and tactics for each of the matches in that season. It is your responsibility to call which of the great range of Offensive and Defensive plays best compliments the strengths of your team. This of course has earlier been determined in the training camp section and the two pre-season matches.

Once you have completed a match there follows a results sequence consisting of all the teams in the NFL, a table showing the standings and then which, if any, of the team were injured. Finally the computer will inform you who your three most valuable players were that week. This happens each week for the sixteen week season and then if you have qualified for the play offs your contract is assured for the next season and you can try to win a Superbowl. Should you fail to reach the Play Offs your performance is assessed and your contract is either renewed or terminated. There is an end of season sequence and you go to the draft for the next season. This carries on ad infinitum until you are discharged. Since one game takes about thirty to forty minutes to play it can be seen that a season can last many hours and there is therefore a save option after any game has completed.

The game has a very realistic feel to it and those people who have even the slightest knowledge of the game through Channel Four will find in stimulating while those who understand the game more will enjoy the varied play calling in the system. It is not a game with state of the art graphics or sound, it relies on the solid game content within its structure. The screens are mostly textual although there is a gridiron on screen with field position marker during the games. The strength of this program is in the involvement the Coach feels with the team, members become heroes and friends. There is a genuine wrench when players of six and seven season's standing are cut for new blood and the general expectation of your star players to pull you through in crunch situations involves you more as the game progresses rather than less.

TEAM CHANGE & MATCH STATISTICS

SCHOBURG TEAM CHANGE

		OFFENSE				DEFENSE
A)	QB	Harry Howell		L)	DE	Stewart Obadiah
B)	RB	Barney Addison		M)	NT	Percy Dorsett
C)	RB	Gary North		N)	DE	R.D.Ray
D)	WR	Kim Van Obendorf		O)	LB	Roland Dorsett
E)	T	Marvin Poole		P)	LB	Leroy Robinson
F)	G	Bing Wagner	¢INJ	Q)	LB	Maxwell MacLean
G)	C	Kirk Powers	¢INJ	R)	LB	Jack Johnson
H)	G	Jay King		S)	CB	Peter Jeffrey
I)	T	Kenneth Clayton		T)	CB	R.U.Cook
J)	TE	Des Plunkett		U)	S	Booker Starring
K)	WR	Jay Jackson	¢INJ	V)	S	Scott Starring
		Punt Rets				Kick-Off Rets
W)	PR	Ricky Cameron		Y)	KR	Ricky Cameron
X)	PR	Rob Dylan		Z)	KR	Kim Van Obendorf

To Change a Player, Enter a Position Code, or Press <RETURN> to Exit -)

As far as I know the game is only available by mail order since Qualsoft feel that the lack of a glitzy image would act against it on the market place. From my point of view the game has kept me sitting up at nights and through holidays and weekends for up to twelve hours at a stretch, with miniscule breaks for food or other necessities. The game does not pretend to utilise the machine to its full capacity, even the mouse is not supported, but I forgive it a great deal because of the sheer friendliness of game play.

The openness of the program allows it to be transferred to RAM disk or to a one meg disk and to be run from any drive, with subsequent gains in access time. The game will work just as well in mono as in colour, either on a colour monitor or TV. If you want to use your computer in conjunction with your brain rather than just a picture gallery, this is the type of program that might interest you. It is a game I have no hesitation in recommending to anyone with even the slightest interest in American Football. •

CODA SOFTWARE — SCHOBURG 0 SEATTLE 0 — :27

FIRST QTR

THE FRANKLINS HAVE POSSESSION

FOURTH AND 10 AT OWN 26

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B DRAW — K HOOK
C SLANT — L LOOK-IN
D SNEAK — M SCREEN
E BOOTLEG — N SIDELINE
F PITCH — O SLANT
G REVERSE — P CROSS
H SWEEP — Q DOWN & IN
I VEER — R DOWN & OUT
S PLAYACTION
0 F-Goal — T SHOTGUN
1 Punt — U FLAG
2 Ang Punt — V HAIL-MARY
W POST

HEADCOACH V3
Published by QUALSOFT,
18, Hazlemere Road,
Stevenage, SG2 8RX
Price: £19.95

Prospero C - The Verdict

We thought you might be tired of us talking about Prospero C so we're letting somebody else have a say.

First Stephen Hill of 'ST User' (from his review Feb 89):
Prospero's Workbench sets a standard of userfriendliness yet to be surpassed..I am forced to resort to sheer nit picking to find fault.

A nice editor is all very well Stephen but can you use the compiler?
I encountered no trouble whatsoever compiling any of my own programs... Prospero has obviously taken a great deal of trouble to simplify the process of linking your C programs as much as possible.

But even reviewers write programs with bugs! How did you get on with probe?
Probe remains the best debugging aid I've so far seen. Its accessible enough for the total beginner to use and yet at the same time easily capable of satisfying the most demanding expert.

Stephen seems to know our products well, I wonder how?
As usual, Prospero has really excelled itself with the documentation.

But will anyone buy it?
Prospero has concentrated heavily on the user interface and has produced one of the few packages which I would actively recommend to the complete beginner. At the same time the promise of complete ANSI C will undoubtedly extend its attraction to more advanced programmers.

Matthew Jones of 'Page 6' gave us some constructive criticism of which we have taken due note, he did however get a little excited by probe (from his review of Prospero C in the Feb/March 89 issue):
Probe the source level debugger is something I dreamed of years ago, and at last it is possible on the ST, being able to watch your code execute will at least double your productivity.

He also concluded in a way that many professional developers for the ST now conclude.
Prospero C will in future be my compiler of choice on the Atari ST. It supplies what I need in a compiler - ANSI standard, an integrated environment and source level debugging.

Demonstration disks are available for those who don't even trust the reviewers. The cost of Prospero C is £129.95 (including VAT).

Prospero Software

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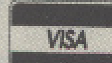
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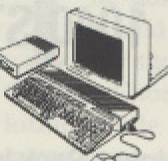
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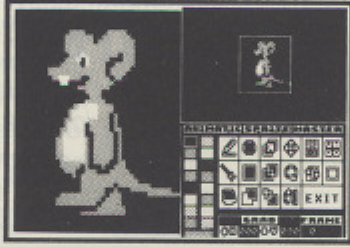
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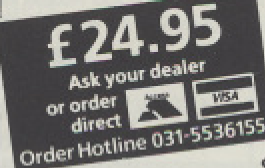
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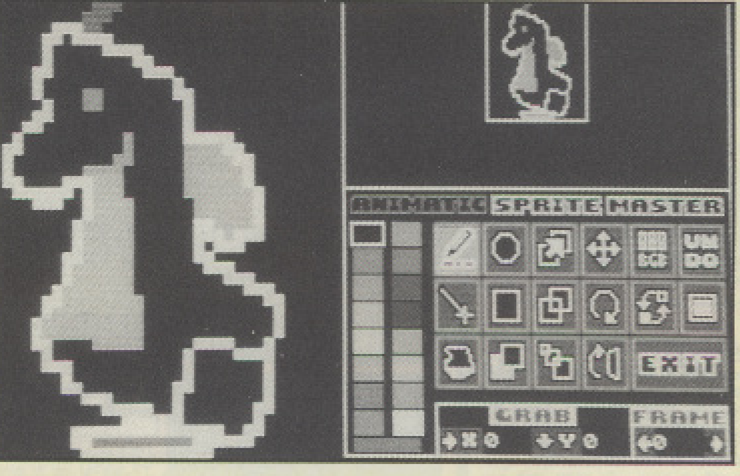
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SPRITE MASTER

Damon Howarth finds an easy way to design sprites and get them to run in several languages

One of the more annoying factors of the majority of languages for the ST is that they do not provide easy programming or designing of sprites. Unlike certain other 16 bit machines the ST is not blessed with hardware sprite creation or even a user defined graphics function, which makes life difficult for would be programmers not fluent in C or Assembler. Fortunately though many third parties have created sprite designers to fill the gap, but unfortunately many of these have been either language specific or extremely difficult to incorporate into a program. Now Animatic claim to have brought out a designer that is compatible with a wide range of languages and is capable of producing good animation as well.

For those who may not know a sprite is a figure which the computer can move about (for example the ball in Arkanoid or the spaceman and creatures in Baal) and sprites are the mainstay of the vast majority of games, so it was with interest I tried out Sprite Master. It claims compatibility with Fast Basic, GFA Basic, Hisoft/Power Basic, Assembler, C and STOS. A creditable achievement indeed.



The utility comes in an attractive box together with one disk and a fairly comprehensive manual. The whole runs in low resolution only, which is, in general, fair enough since most games are in that mode anyway. To create a sprite is a fairly simple task, the whole package is mouse driven from the loading screen.

A row of icons give access to the various functions which allow various loading and saving functions and access to the toolbox, which is a comprehensive collection of utilities, the draw mode, a testing mode, credits and quit. These can also be accessed via the function keys for added convenience. The manual briefly explains the concept of animation, which will be readily understandable to anyone who drew running dots on the corners of schoolbooks when young. It also gives a good guide to the use of the drawing program which is not unlike Neochrome in format. Colour swapping, copying and pallette creation are all accounted for, as are various cut and paste routines. Each step of the sprite is drawn on this and then inserted into the relevant space or step in the program for later use. The 'copy to next frame' function is useful here since it allows for compatibility of style.

The disk contains several example files showing how to run the resultant sprite in the various basics and it is a simple matter to alter these to suit any new sprite that is made. These are somewhat useful as a demo of programming difficult concepts in various languages. There is also a picture grabber and compacter on the disk so that Neo and Degas format pictures may be cut and compiled into sprite format another useful aid for those who find drawing a problem. There is even an ASCII converter to make any sprite you design compatible with low level languages for manipulation.

SPRITE MASTER
Published by Soft Bits
Price £24.95

The package was surprisingly friendly to use and once the actual mechanism for placing drawings into frames was mastered it did not take long to create a simple bouncing amoeba. I tried this with the supplied demo program for GFA and FAST Basics and was pleased to see that it worked very swiftly in totally compatible mode. Having tried to use sprites in these two languages before, Sprite Master scored top marks with for this. The claimed compatibility with STOS though is a little of a cheat. To utilise the package's sprites in this it is necessary to grab ready saved sprites made by Sprite Master via the STOS sprite grabber. Yes you can use Sprite Master to run on STOS but there seems little point as it does not offer any significant advantage over that package's excellent creation facilities. Indeed as Sprite Master is only about five pounds cheaper than STOS I can see it being of little value to owners of that software. For others though it is a worthwhile experience and may solve many frustrations for them. Unlike many other sprite editors, Sprite Master does not just leave you with a bunch of sprites and let you figure out how to use them in your program. The examples given in various different languages are very useful for those who are not already totally proficient in their chosen language. Assembler programmers may not need such help but those who program in any of the BASICs listed might find the hints a blessing.

On the whole I would recommend Sprite Master to all but STOS users who are interested in expanding their programming abilities with their favourite languages. •

THE RESOURCE FILE

The Resource File is a service provided by PAGE 6 to help Atari owners find sources of information, help and supply. An entry in this feature does not necessarily imply any endorsement by PAGE 6. The retailers shown are those who are known to have supported Atari for some time but things change and readers are advised to check for themselves to ensure that the information is still current. We would ask any readers who find information to be inaccurate or out of date to let us know so that an entry may be amended or deleted.

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Contact Martin Sharpe, 28, Brooklyn Court, Bradford Road, Cleckheaton, West Yorks, BD19 4TJ. Tel.0274 851131 (24 hours). Monthly meetings, newsletter, trips, discounts etc.

A. U. G. (IRELAND)
Contact Mike Casey, 3, St. Kevins Park, Kilmacud, Co. Dublin. Ireland. Tel. 01 881830 or BBS 01 885634 (24 hours). Monthly meetings and newsletter.

BESTWOOD 8-BIT USER GROUP
Contact David Taylor, 60 Stevenholme Crescent, Bestwood Park, Nottingham, NG5 5JW. Tel. 0602 209735. 8-bit local users only

BOURNEMOUTH AND POOLE ATARI USER GROUP
Contact Colin Hunt. 248, Wimborne Road, Oakdale, Poole, Dorset. ST, 8-bit, hardware and software development.

BURY ST. EDMUNDS USERS GROUP
Contact Gary Brummage, 22, Ridley Road, Bury St. Edmunds, Suffolk, IP33 3HS. Please send SAE for details.

COLCHESTER ATARI USER GROUP
Contact Mike Harrison, 172, Harwich Road, Colchester, Essex, CO4 3DD. Meets fortnightly, supports all Atari systems. Tel. 0206 867931 or 0206 42900

FaST (Fast ST Basic Users Group)
Contact Simon Rush, 42 York Road, Rayleigh, Essex, SS6 8SB. Tutorials in Basic and 68000. SAE for full details.

FLOPPYSHOP ST
Contact Steve Delaney, 50, Stewart Crescent, Northfield, Aberdeen, AB2 5SR. Tel. 0224 691824.

The GATEWAY CLUB
Contact Phil Herberer, 164d Radcliffe Road, Lakenheath, Suffolk. Tel. (Eriswell) 2363. All computer club with Atari section. Meets once a month.

LACE (LONDON ATARI COMPUTER ENTHUSIASTS)
Contact Glenn Leader, 143 Richmond Road, Leytonstone, London, E11 4BT. Tel. 01 556 0395. XL,XE, ST users. Great newsletter and PD library

LUG'S (LEEDS USER GROUP)
Contact Dave on 0532 717712 anytime. 1050, 810, cassette users welcome. Send SAE to P.O. Box TR7, Leeds, W. Yorks LS12 5PG

LVAUG (LEA VALLEY ATARI USERS GROUP)
Contact Matt Tydeman, 125 Cadmore Lane, Cheshunt, Herts, EN8 9JH. Regular meetings and newsletter, 8/16 bit.

MACCLESFIELD COMPUTER CLUB
Contact Peter Solomon. Tel. 0625 20782 evenings and weekends. All computer club with Atari section. Meets fortnightly.

MERSEYSIDE ATARI CLUB
Contact Mike Lynch, 24, Oakdene Road, Anfield, Liverpool, Merseyside, L4 2SR. Tel 051 264 8435. ST ONLY. Regular meetings, newsletter and more.

NORTHERN ITALY ST FANS
Contact Carlo Bianchini, Viale Argonne 12, 27100 PAVIA, Italy

ROCHDALE ATARI COMPUTER ENTHUSIASTS (R.A.C.E.)
Contact The Secretary, P.O. Box 1, Rochdale, Lancs OL12 8TQ. SAE appreciated. All Ataris, meetings fortnightly

SIGATARI
Contact Glenn Leader, 143, Richmond Road, Leytonstone, London, E11 4BT. Tel 01 556 0395. For those interested in more unusual applications.

STARLIGHT ATARI CLUB
Contact Douglas Woodcock, 8, Ethnard Road, Peckham, London SE15 1RU. Tel. 01 639 3109 after 5 pm. Members with disk drives (8 bit).

ST CLUB
Contact Paul Glover, P.O. Box 20, Hertford, S13 8NN. Mail only(?). Worldwide.

VTB ATARI COMPUTER CLUB
Contact Christian Delabarre, Hekstraat 7, 9050 Evergem, Belgium. Tel. 091/26.29.29. For XI,XE,ST. Organised talks, visits etc.

WORLD ATARI PENPALS Int. User Group (WAP)
Contact Max Terveen, Magerhorst 8, Alphen a/d Rijn, 2402 LP, The Netherlands. Tel. 01720 45583. Members in USA, Canada, France, U.K., Greece, Germany, Saudi Arabia. Have circulating disk (8-bit and ST). Mail only.

Do you want others to know about your group? Send details as above ONLY (5 words max. on Members!) on a plain sheet of paper headed RESOURCE FILE - USER GROUPS. That's all you get! We will not publish any other details as meeting times and places tend to change.

BBS

Name: **THE VILLAGE**
Number: 01 464 2516
Hours: 24 Hours/7 days
Baud: V21, V22, V22BIS, V23
Features: 8 bit area, ST area, CP/M area

Name: **INFOMATIQUE**
Number: 0001 764942 (Dublin)
Hours: 24 Hours
Baud: 300/300 and 75/1000
Features: ATARI SIG and program library

Name: **LEICESTER CENTRAL**
Number: 0533 700914
Hours: 24 Hours
Baud: 300 and 1200/75
Features: 8 bit area and ST area

Name: **CHARLY**
Number: 0451/31642 Germany 010/49/451/31642 from England
Hours: 24 Hours/7 days
Baud: 300, 8n1
Features: Atari 8-bit and ST areas. P.D. software. Some German required!

Name: **THE ARK**
Number: 021 353 5486
Hours: 24 Hours/7 days
Baud: 300 or 1200/75
Features: 8 bit with Downloads, hints, swaps etc.

Name: **CRYSTAL TOWER BBS**
Number: 01 886 2813
Hours: 24 Hours
Baud: 300 to 2400
Features: Atari section which needs your support!

Name: **THE GNOME AT HOME**
Number: 01 888 8894
Hours: 24 Hours/7 days
Baud: V23 viewdata
Features: ST area frame *1632.0#. ST Babble starts on frame *1632.9#

Name: **CBABBS**
Number: 021 430 3761
Hours: 24 Hours/closed Thursdays
Baud: 300
Features: ST/8 bit, Email to USA and Canada

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